he Magazine for a Motoring World

JUNE 1951 25c

MOTOR TREND

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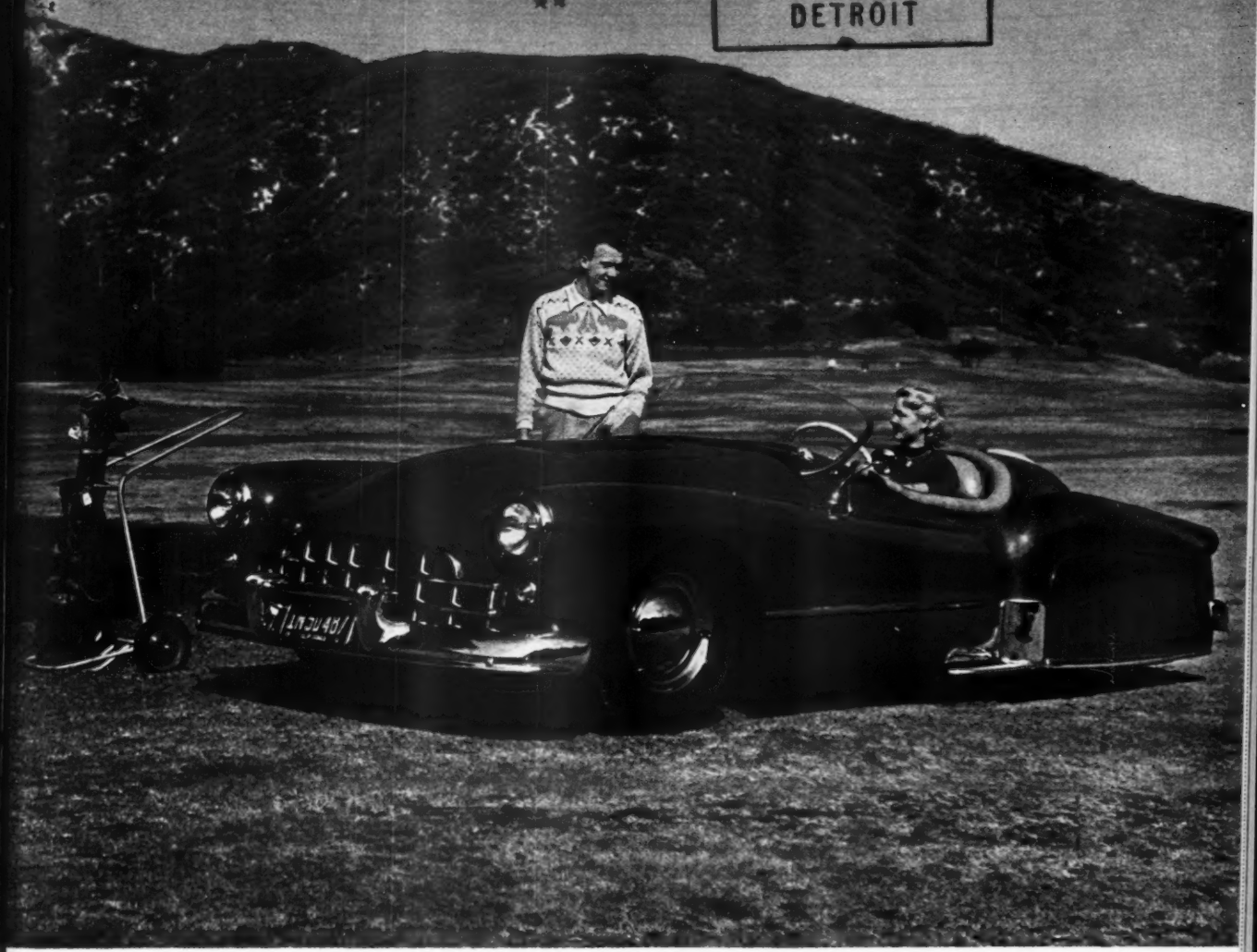

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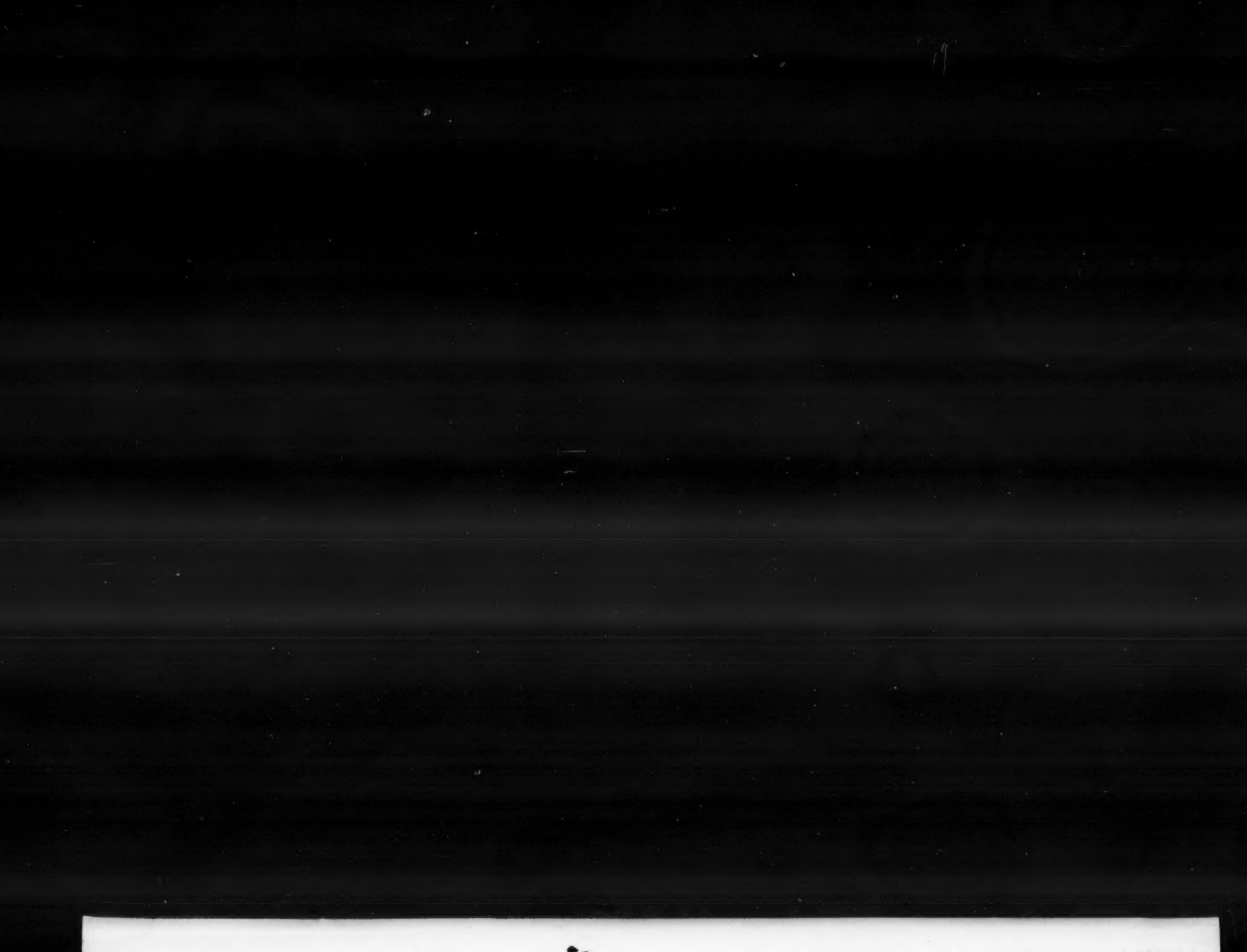

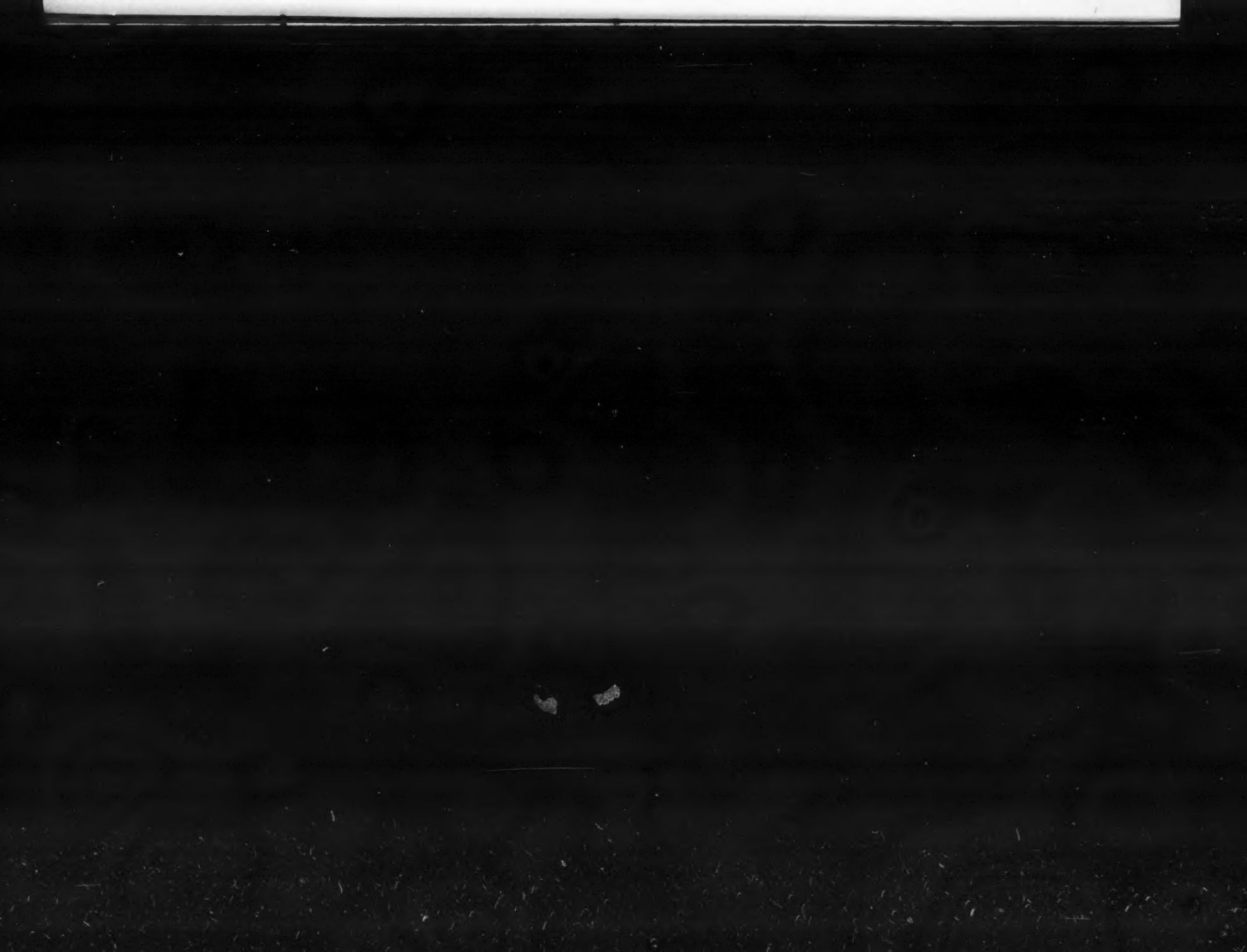

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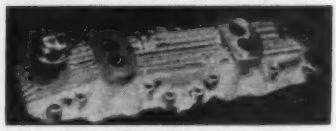

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MOTOR TREND

THE MAGAZINE FOR A MOTORING WORLD

JUNE 1951 Published Monthly Vol. 3 • NO. 6

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COVER: Surely one of the most unique custom jobs to come out of Southern California in many a moon is the Skylane Motors Special, built by L. Viersen of Sun Valley, California. Being coaxed to join in a round of golf on Charlie Corbett's Chevy Chase Golf Club in Glendale is lovely, blond Virginia Carson. PHOTO BY FELIX ZELENKA.

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Second Annual Motorama

PREPARATIONS are now being made for the second annual Motorama, the west's glamour show of motorized equipment, which attracted huge crowds in its first presentation in Los Angeles.

Sponsored by the publishers of MOTOR TREND, HOT ROD and CYCLE magazines, the exposition is slated for the beautiful Pan-Pacific auditorium, largest facility of its kind in the west. The dates have tentatively been set (Nov. 7-Nov. 11).

With the outstanding automotive creations of the country slated for the display, Motorama will again feature sports cars, custom cars, classic cars and foreign cars. In addition, there will be a vast array of other motorized equipment including championship boats, roadsters and planes.

The July issue of MOTOR TREND will carry more complete details on the show. For additional information now, please write to Motorama, Inc., 1015 So. La Cienega Blvd., Los Angeles 35, California.

YOUR EDITOR SAYS . . .

A FEW DAYS before our final deadline, we received the following wire from Harry Cushing:

> "As a result of the 25 per cent cut in use of tires and tubes last month, General Motors, Chrysler and Ford have eliminated the fifth tire on all passenger cars. Other companies are expected to follow suit. There is talk here that tire rationing may result to prevent scare buying."

Unfortunately, the importance of such hot news items (we received the information before the general news release) is somewhat overshadowed by the normal make-up time of a monthly magazine. However, the receipt of information on things that are happening NOW enables us to keep YOU better informed.

That's why we're happy to announce that Harry Cushing has been appointed a member of our permanent staff. As Eastern Editor, Harry will head up the MOTOR TREND office in Detroit (2437 Book Bldg., to be exact). All editorial contacts will continue to be made at our home office (in Los Angeles), although midwest and eastern advertising contacts can be made through the Detroit office.

Harry comes by his aptitude in the automotive field quite naturally. His father, George W. Cushing, grew up with the automotive industry, passing on to his son part of his great store of knowledge.

His experience with three advertising agencies (after graduation from college) stood him in good stead. Between 1944-1949 he was a member of the Public Relations Dept. of the Automobile Manufacturers Association and the Automotive Council for War Production. He also edited the monthly publications, *Automotive War Production* and *Automobile Facts*.

For the past six months Harry has been our steady Detroit Representative, keeping a finger on the pulse of the automotive industry, to keep YOU, the reader, up-to-date. With more time to devote to this subject, you will be better informed than ever.

ANOTHER WELCOME addition to our staff this month as Associate Editor is Richard Van Osten. Dick has been connected with automotive speed events for 17 years. His driving experience—he has driven all of the late Tommy Lee's automobiles, including Bugatti, Talbot and BMW—is second only to his knowledge of Grand Prix cars.

During four years in Europe immediately following the war, he toured with the Grand Prix circuit throughout 16 countries. The contacts he established there will be invaluable in bringing you inside information on some of the European events. We don't think we could have picked a more capable man to step into the shoes of Griffith Borgeson, who will now be Managing Editor of MOTOR TREND.

—W. W.

It's Grants in the stretch

. . . and across the line for the checkered flag! Consider the results of these and other *strictly stock cars* and be convinced that Grants are best.

Gerry Grant says:
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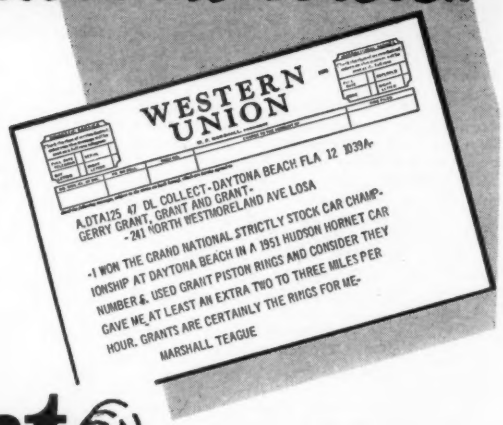
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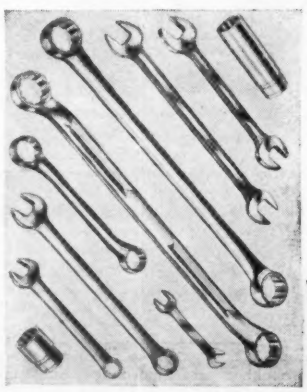

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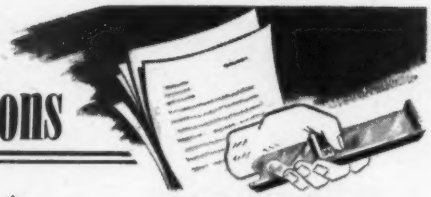
Reader Reflections



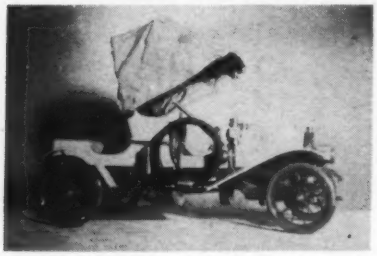
Letters published in this department are the opinions of the writers and are not to be construed as those of the editors. Address correspondence to: Reader Reflections, MOTOR TREND, 1015 South La Cienega Boulevard, Los Angeles 35, California.

NOSTALGIA ROW

Gentlemen:

I am a very eager follower of MOTOR TREND and cherish every copy. Of particular interest to me are the "classic cars" and "antique car" sections.

I'm enclosing two photographs of my 1910 Model H friction-drive Cartercar. . . . It's pearl gray with red undercarriage and heliotrope striping with plenty of polished brass and a highly polished mahogany firewall. Oh! by the



way, my 1910 Cartercar is a scaled model (16 inches to the inch) which I built in spare time over a 14-month period. It was completed from the chassis up using drawings which I made with data from an original Cartercar booklet in my collection. . . .

. . . I want to correspond with other fellows who model automobiles, either vintage, sport, or classic. Object: to form a correspondence club of auto miniature makers who want to swap ideas and chatter about scaling model cars from the ground up.

Bill Lewis
Creston Avenue
Burlington, Mass.

Gentlemen:

As I turned the pages of your April issue of MOTOR TREND, I saw a picture that brought back fond memories. The article by Tracy Gilpin under "Duster Data" brought to mind some happenings I would probably never have thought of again.

An uncle of mine bought a two-cyl. Maxwell when I was 11 years old and whenever he drove the car or worked on it, I was right there. He was very kind to me and taught me to drive soon after he bought it.

We toured the country around but never went much more than 50 to 60 miles on a trip. My job was to check the amount of oil the major was getting from the oil tank. I would sit on the floor and count the drops as they fell inside the glass tubes on the dash (firewall) and make adjustments to correct for too much or too little oil. . . .

We frequently went out to the farm but the first trip was a rather hard one as we had to push the car up a steep, but short, hill. The hill was too steep for the gas to flow. Someone suggested backing up next time so we had no more trouble getting to the farm. . . .

I shall always remember that little car as the latest thing in autos and she seemed to ride, steer, and drive perfectly—or, that's the way it seemed to me.

Yours for more history of the old cars.

F. S. Nance
Sumter, So. Carolina

SUGGESTION CORNER

Gentlemen:

First, may I congratulate you on the April issue of MOTOR TREND which, to me at least, appears to be an excellent composition of all types and ages of motor facts and photos. Only the specialist on one facet of the automobiling picture could complain.

Second, there were two pages in the issue I wish had either been left out, or had been converted. It is my personal opinion that a steering wheel is a poor excuse to bring the strained humor of the photos of the man caught speeding into MOTOR TREND, when the space might profitably have been devoted to more auto pictures. . . .

Capt. L. T. Morse, USN
FPO, San Francisco, Cal.

Gentlemen:

. . . Who cares how Joe Nobody nearly rammed a hay wagon while crossing the meadow en route to a ball game [". . . And That Taught Me to Drive"]?

The Motorist vs. Pedestrian joke ["Care and Maintenance of Pedestrians"] is a very tired one at best. I was disgusted to find MOTOR TREND wasting space on this boring subject. . . .

Dean Potter
Vinita, Okla.

Gentlemen:

I received my first copy of MOTOR TREND and I wish to congratulate you on a great magazine made better by the additional pages.

However, you ask what the readers want, so here goes. Let's cut out the picture story as in the April issue, "The Speeder." There's a page and a half you could have used for custom cars or some other purpose. Yes, I'd like to see more custom cars and enlargement of the regular features.

Robert C. Weaney
Buffalo, N.Y.

YOUNGEST READER?

Gentlemen:

When I find your magazine in the mail, I drop everything and read it from cover to cover. Next, my wife reads it.

Finally, my three-year-old son gets to see MOTOR TREND, as the enclosed photo will show you.

Ivor H. Ochsner
Frederick, So. Dakota

FOR EVERY ACTION . . .

Gentlemen:

I am writing a letter of appreciation for inserting my ad in the April issue of your magazine. It brought almost immediate results in a trade for an Olds 88 engine. It also did something else which was almost as pleasing as making the trade. It put me in direct contact with about 100 motor enthusiasts like myself.

H. Ralph Hendrix
Hampton, Virginia

Gentlemen:

You are certainly surprisingly pleasant to do business with. You ran an advertisement on my Duese ["Sell 'N' Swap"] in the April issue without charge. Its picture appeared on page 41 ["Classic Comments"]. . . .

Thanks a million. . . .

For your interest I am sending data sheets I had to prepare in self-defense against the flood of inquiries.

W. C. Wilkinson
Tucson, Arizona

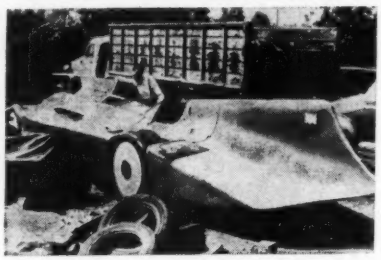
—We regret that the deluge of items for listing in "Sell 'N' Swap" will make it necessary to charge a nominal fee for this service, effective May 5. The token charge is only $1.00 (to cover handling costs).—Editor

NO TRIBUTE

Gentlemen:

In a recent edition of MOTOR TREND one of your subscribers asked for information pertaining to the famous racing car of the noted racer, Sir Malcolm Campbell.

The car is at present rusting away in a junk dealer's yard in London. I am sure we cannot



say that this is a fitting tribute to a man who did so much toward adding to the development of our present-day racers and commercial automobiles. . . .

William A. Puryear
Plainfield, New Jersey

SINGING PRAISES FOR SINGER

Gentlemen:

G. Thatcher Darwin's article on the Singer "9" [April] was just what I'd been looking for. I own one of these cars and I was anxious to learn how they were rated by someone with first-hand experience. However, my advice to anyone who insists upon being comfy is to stay out of sports cars. . . .

All in all, I think the Singer is a darn good sports car buy. The clean, neat lines, the quality of the materials it's constructed from, the technical design, and the price should make this car most attractive to the sportsman of modest means.

Robert McCue
South Ozone Park
Long Island, New York

REQUEST FROM A TANKER

Gentlemen:

I am in the Army, and much to my regret, am unable to keep up with the racing world as much as I would like to. I want to congratulate you on being the majn source of supply of the information I do get.

If not too much trouble, I would like you to print a portion of my letter in the next issue of MOTOR TREND, and include my address, with the comment that I would like anyone with the time to send me any new information, new gadget and so on, that may pertain to the racing world. . . .

Some of the other fellows up here . . . all say thanks to the staff. . . .

Cpl. Rufus F. Lampkin
Tank Co., 278th Inf RCT
Fort Devans, Mass.

THE *Belond* EQUA-FLOW Exhaust System *Pleases Henry Banks*

(1950 AAA NATIONAL CHAMPION)

Banks and his car with Mr. Belond at Southern California Muffler Company

HENRY BANKS

IONAL CHAMPION 817 S. LAUREL ST. COMPTON, CALIF.

February 6, 1951

Mr. J. S. Belond
Southern California Muffler Co.
11039 W. Washington Blvd.

Dear Sandy:

I have driven my Ford Crestliner several hundred miles now since you installed your Equa-Flow exhaust system. I am very pleased with the results. Congratulations on a very neat and efficient installation.

My engine is much more flexible and has that pleasing mellow tone. I haven't had a chance to check the mileage yet since making the installation but when I do I am sure there will be a substantial increase.

The Belond system is in my estimation the best single improvement that can be made in a Ford or Mercury.

Sincerely yours,

Henry Banks

Motorists all over America are acclaiming the BELOND EQUA-FLOW Exhaust System as the best single improvement available for automobiles equipped with a V8 engine. The standard exhaust systems are too small in capacity and the exhaust gases are forced to make restricted turns. In some cases, all of the exhaust from the left side of the engine must go forward, cross over and pass through the right side exhaust manifold before starting toward the muffler and the rear of the car. In most cases, the standard single muffler does not have enough capacity to handle the full volume of exhaust from the engine.

These conditions create exhaust back pressure, which means that valuable horsepower is consumed in forcing the exhaust through the manifolds and single muffler. When this pressure is relieved, that horsepower becomes available to the rear wheels.

By reducing exhaust back pressure to an absolute minimum, BELOND EQUA-FLOW Exhaust System actually increases the horsepower output, resulting in improved speed, performance and efficiency. The EQUA-FLOW Exhaust Systems are available complete with all parts necessary for installation including Mello-Tone Mufflers or with everything but the Mufflers for the convenience of those who desire the efficiency of the EQUA-FLOW Exhaust System but who do not want the tone. Standard quiet mufflers may then be installed. This system is almost as effective as using the straight through mufflers because each stock muffler has enough capacity to pass the exhaust from four cylinders without creating excessive back pressure.

The stock muffler system is the most suitable for Oldsmobiles, however, on Fords, Mercurys and Lincolns, it is a matter of individual choice.

NOW AVAILABLE FOR:

	COMPLETE WITH MELLO-TONE MUFFLERS	LESS MUFFLERS
• FORD V8 OR MERCURY 1935-51	**52.50**	**44.50**
• OLDSMOBILE 88 & 98 (Quite Loud)	**74.50**	**67.50**
1949-51 with Hydramatic *(Will not fit cars with Standard Transmission)*		
• SMALL LINCOLN V8	**74.50**	**67.50**
1949-51 with Hydramatic *(Will not fit cars with Standard Transmission)*		

Other Belond Products

MELLO-TONE SINGLE MUFFLERS

1935-41 V8	$5.70	1937-51 Chev.	$5.70
1942-51 V8	6.60	1936-41 Plym.	5.70
1939-41 Merc.	5.70	1942-48 Plym.	6.60
1942-51 Merc.	6.60	1937-48 Buick	7.20

These Mufflers are straight through steel packed mufflers and are designed to give a deep Mello-Tone Exhaust sound to all cars. Made of heavy gauge steel, they are blow out proof. Use of these mufflers tends to reduce back pressure to some extent even when used singly.

MELLO-TONE DUAL MUFFLER SETS

1935-48 Ford V8	$23.00	1937-50 Chevrolet	$32.50
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1939-48 Mercury	23.00	1942-50 Dodge-Plymouth	32.50
1949-51 Mercury	25.00	Plus Deposit on Manifold	
1949-50 Oldsmobile 88 & 98	32.50	1949-51 Lincoln V8 (With Hyd.)	32.50

Mello-Tone Dual Muffler Sets are provided for those who wish to reduce back pressure as much as is possible without the addition of Exhaust Headers. Dual Muffler Sets produce satisfactory results at a low cost and can be used in conjunction with Exhaust Headers which may be added at any time.

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EQUA-FLOW Exhaust Systems Less Mufflers
(For use with stock mufflers)
FORD V8 or MERCURY, 44.50 ☐ OLDSMOBILE 88 & 98, 67.50 ☐
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☐ Single Muffler S_____ ☐ Dual Muffler Set S_____

All prices f.o.b. Culver City, if you live in Calif., add 3% sales tax.

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☐ 50% deposit enclosed, ship, balance C.O.D.

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Make	Year	Model	Body Style

Name_____ Address_____

City_____ Zone_____ State_____

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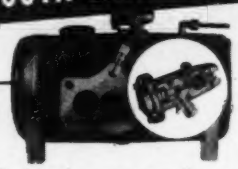

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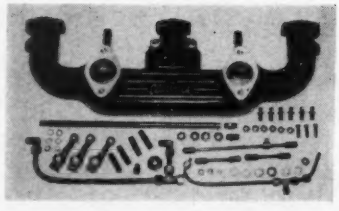

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4921 West Jefferson, Los Angeles 16, Calif., PArkway 3191

SELL 'N' SWAP

NOTE: Due to innumerable requests for information on where to obtain hard-to-get parts, cars, information, etc., MOTOR TREND initiated this column. We have been so swamped with requests for items to be published that we now have a backlog that is becoming difficult to cope with. For that reason we find it necessary to charge a nominal fee of $1.00 per insertion (to cover cost of handling and printing) effective May 5. All items received before that date will be published free-of-charge.

Requirements are the same as before: copy limit of 25 words (not including name and address), first come, first served; we reserve the right to edit where necessary; we are not responsible for accuracy of descriptions, although we will reject any misleading statements. This service is not open to commercial advertisers. No ads will be accepted if payment is not made in advance and such communications will not be acknowledged. Address your request to Sell 'N' Swap—Editor.

SELL OR SWAP—Classic car—1926 Chrysler 58 touring; motor overhauled, new tires. Best offer cash or trade. Ronald Kupinsky, 2707 Morris Ave., New York 58, New York.

FOR SALE—Antique car—1919 Buick E-6 touring. Good running order. $125. Also, 35x5 tires, tubes, rims, reasonable. T. C. Murray, 301 Ridgeway Ave., Rochester 13, New York.

WANTED—Cord SC 812 manifolds, supercharger, hub caps, hood and louvre assembly. W. D. Strayhorn, Savannah Terrace, No. Augusta, S.C.

FOR SALE—Classic car—1930 Cadillac seven-passenger sedan, custom-built, excellent condition, new 6-ply tires. Price $350. Jack Mayl, 82 E. Dixon Ave., Dayton, Ohio.

WANTED—1941 Hollywood Graham supercharged, good body and chassis. Motor not important. Gene Houser, 1255 S. Silas, Decatur, Ill.

FOR SALE—1937 Packard 12 convertible coupe. Good general condition. Needs paint, top and minor repairs. Price $300. Paul H. Lever, P.O. Box 108, Tucson, Ariz.

FOR SALE—Front wheel drive unit complete for 1930 Cord. Price $125, plus freight. Also wrecking the rest of the car, radiator, grille, etc. Jack Wensley, 912 E. Park, Anaconda, Montana.

WANTED—Information how to customize 1951 Nash Statesman. E. G. Warynczak, 3044 N. Laramie Ave., Chicago 41, Ill.

FOR SALE—1936 Packard 12-cyl. five-passenger sedan. 50,000 miles. Small amount of clean-up and body work to restore. $250 or make offer. John Darrow, 8701 Hall Road, Utica, Mich.

WANTED—1931 Model A Ford. Must be in perfect condition, especially body, in or near Pittsburgh. Also information regarding upkeep of Model A's. Write I. Manco, 6 No. Balph Ave., Pittsburgh 2, Pa.

WANTED—Repair manual, instruction book or any data pertaining to 1920-'24 Lafayette. Can't finish my 1924 Lafayette without it. R. Brantley, 20-65 Crescent St., Astoria, N.Y.

SELL OR SWAP—1937 Cord convertible Phaeton. Perfect condition throughout. Might trade. Make offer. All inquiries answered. Charles E. Lee, 101 N. Roberts, Edmond, Okla.

WANTED—Used front fenders, radiator and grille assembly, front bumper, hood and wheel for 1949 Hudson. Adams Wrecking Yard, City Limits, Route 1, El Dorado, Ark.

FOR SALE—1931 Cadillac low-mileage V16 Fleetwood limousine. T. Crichton, 112 Melville Pl., Irvington, N.J. or A. W. Siman, TExas 03962, Culver City, Calif.

WANTED—Ads and pictures of unrefinished automobiles from 1900-1942 for hobbyist. Eugene Higginbotham, Jr., Box 803, Hinton, W. Va.

WANTED—Information of amount milling possible on '37 DeSoto, '34 Ford, without causing valves to rub, resulting compression ratios. Patrick Gratton, 208 W. Ninth, Roswell, New Mexico.

WANTED—Block for a 1937 Cord (supercharged). Al Hylton, 533 Brookside, Kansas City, Mo.

WANTED—Sport type body to replace town limousine body for '31 Duesenberg or plans to alter present body. P. A. Scusa, Phoenix Gage Co., Phoenix, N.Y.

WANTED—Packard wheels respoked and where can I get 7.00x17 white-wall tires? Don H. Korntved, Box 777, Greenfield, Calif.

FOR SALE—Have Edmunds dual manifold, two Stromberg carbs and H & C ¾ grind camshaft for Pontiac 6. Price $25 or best offer. A. O. Tice, 140-24 Oak Ave., Flushing, L.I.

WANTED—Custom car or A-V-8 street roadster. Send picture, price and specifications to Chet Hite, 211 Boiling Springs Dr., Meadowthrope Subdivision, Lexington, Ky.

SELL OR SWAP—1927 Ford coupe in fine shape. Want older car and brass radiator shell. Arnold D. Heltness, Box 333, Rochelle, Ill.

FOR SALE—1946 Ford convertible, Lincoln Continental rear, customized grille. All accessories. Pictures on request. Best offer. John Dennis, 97 Arborway Dr., East Braintree 84, Mass.

FOR SALE—Various parts for 1937 Horch. Complete listing on request. J. H. Orr, Box 99, Manistique, Mich.

SELL OR SWAP—$900 coin collection for good 1939 Graham supercharged two-door sedan. Send information to Jim Williams, 1918 E. 12th St., Tucson, Ariz.

FOR SALE—Front wheel drive racer, two-port Riley, Rudge quick detachable wheels 5.00x19, rubber new, fast cam, high-pressure oiler. $385. Harvey Marth, Herman, Minn.

FOR SALE—Stock 1917 Ford roadster, complete $125. John Lindner, 11938 S.E. Harold St., Portland, Ore.

FOR SALE—'41 Hollywood Graham. Sell for $100 for parts, or buy "clean" same up to $450. J. A. Nichols, 7800 So. Van Ness Ave., Los Angeles 47, Cal.

SELL OR SWAP—1912 Cadillac closed coupe. Self-starter, good condition. Prefer Mark IV Jaguar sedan. Leo Guszak, 2430 Prescott St., Corpus Christi, Texas.

WANTED—Large Roots-type blower for 350 to 400 cu. in. engine or larger, or location to same. Must be reasonable. Fred Stephan, Box 1975, Parker, Ariz.

FOR SALE—1934 Lincoln V-12, body by LeBaron, convertible coupe. Good tires, needs top and front leather. Extra motor and transmission. Pictures on request. Price $450. Bill Shillig, 102 South 29th Place, West, Phoenix, Ariz.

WANTED—Information from Crosley owners regarding how many miles you get on a new Crosley motor before rebuilding is necessary. Harry Weidemann, Box 135, Nyssa, Ore.

WANTED—Cadillac Engine 1950. I. R. Ames, P.O. Box 311, Waltham, Mass.

FOR SALE—1937 Packard 12 Sedan, short wheelbase. Fine condition throughout, 45,000 actual miles. Original blue. Tires, interior almost like new. $600. A. J. Dunkel, 19147 Chase St., Northridge, Calif.

FOR SALE—Atlanta four-wheel independent suspension chassis (no engine) by Reid Railton, conv. coupe body. Ideal base for sports car. Richardson, 927 LeDoux Rd., Los Angeles 35, Calif.

SWAP—1913 Dorris with two-passenger Stutz Bearcat type body. Good shape all the way through. Would like 1936 Auburn speedster (supercharged) in good condition. Fred Barnes, Box 532, Alturas, Calif.

WANTED—Cad motor to put in '50 Ford convertible. Dr. W. B. Towle, 308 Mendocino Ave., Santa Rosa, Calif.

SWAP—1939 Packard 12 seven passenger for coupe, two-door victoria brougham, or convertible coupe of same year. C. Marschall, Alta Mira Ranch, P.O. Box 442, Whittier, Calif.

WANTED—Information regarding customizing 1948 Hudson Commodore six cyl. George Herbst, Sherwood Park, Rensselaer, New York.

WANTED—Austin roadster, 1932-34, suitable for reconditioning. Harris K. Goldstein, Perry Point, Md.

FOR SALE—1940 Ford deluxe convertible, customized. New top and paint job, heater, radio, whitewalls, all extras. Price $550. Wm. Stanley, 1376 Yale Station, New Haven, Conn.

WANTED—Names and addresses of firms that handle Cord parts in Louisiana area. A. R. Nolan, 511 Scott St., Alexandria, La.

WANTED—For custom conversion, chrome carriage bars (either rigid or folding), V-12 insignia, chrome side exhaust pipes or horns. Hy Offenberg, 125 B 11 St., Brooklyn 24, N.Y.

WANTED—Information on clutch and wheel alignment for 1933 Lancia Artena. Would consider trade for sport car of equal value. Photos exchanged. W. L. Perry, 17 Elm St., Janesville, Wis.

SELL OR SWAP—1907 Maxwell. New tires, tubes and top. Will run anywhere. Best offer over $600.00, or what have you? F. E. Fuller, 3429 Chestnut, Kansas City, Mo.

WANTED—Old or new parts and information on increasing performance of 1927 Model T Ford. High compression head, distributor ignition, overhead valves, pressure oiling system, etc. Paul Vader, Parlin, Colo.

SELL OR SWAP—47-74 Harley-Davidson. Sharp, new chains, cushion motor sprocket, seal beam, new battery, etc. Make offer or swap for Ford or Chev. coupe. Wm. Wilton Wells, 4309 Crenshaw, L.A. 8, Calif.

SELL OR SWAP—One very fine Leland KB 1932 V-12 Lincoln coupe with rumbleseat, six wheels, four good tires. Custom made to owner's orders (only two in existence). Donald O. Collins, Box 491, Kalamazoo, Mich.

FOR SALE—1948 Tucker four-door sedan, two extra motors with other parts available. Mr. John Spatafora, c/o Franklin Jobbers & Supply Co., 914-16 N. Broadway, St. Louis 2, Mo.

FOR SALE—1903 Franklin. Real antique. Four brass headlamps, chain drive, running condition. Best offer over $500 takes. Photos on request. Louis Toppano, 7200 E. Marginal Way, Seattle 8, Wash.

WANTED—Stock or adaptable pistons for 1926 Star 6, standard or .040 O.S., or .060 O.S., or information about how to adapt Stude Champ or Terraplane 3-in. pistons. D. L. Brechner, P.O. Box 82, Ephrata, Wash.

FOR SALE—1937 supercharged Cord, factory rebuilt motor. Also many other new parts in car. Body in good shape. Robert Swan, 5659 Stockton Blvd., Sacramento, Calif.

FOR SALE—1932 Auburn 12-cyl. roadster. Needs paint and top. Motor and body in excellent shape, also spare body parts for same. Price $125. Edward R. Blain, 183 Connors St., Gardner, Mass.

FOR SALE—1924 Overland touring. Many spare parts, including nearly complete spare engine. State inspected. Running condition, licensed, nearly new rubber. Clair Gable, Campbelltown, Pa.

FOR SALE—Auto sales catalogs: Packard, Cadillac, Lincoln, etc.; also orphan and foreign cars. Plus MoToR magazines, show numbers, etc. Details for stamped envelope. A. E. Twohy, 400 No. Kenmore, Los Angeles 4, Calif.

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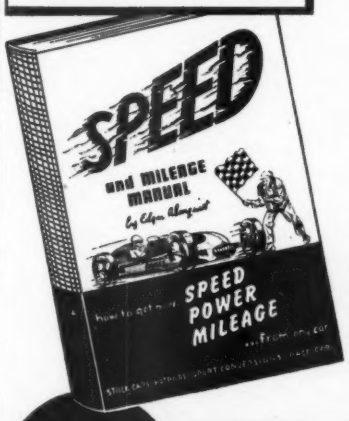

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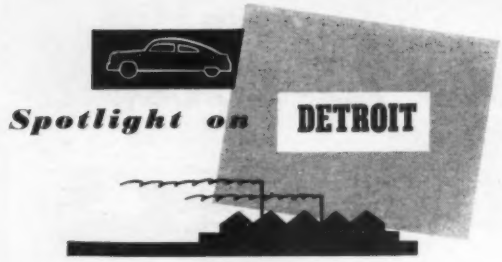


PLANS MADE FOR 1952 MODELS . . .
NEW PRODUCTION MARKS SET . . .
INDUSTRY OPPOSES NEW TAXES . . .

by Harry Cushing

DETROIT, MICHIGAN—Millions of dollars worth of war contracts flowing into Detroit . . . millions of cars flowing out as new production marks are set. . . . These facts dominate Detroit's business life today and contradict the dire predictions which have emanated from the auto capital since the first of the year. Now, barring an all-out national mobilization effort, it looks as though the industry will be able to meet its essential military and civilian production obligations with a minimum of dislocation. . . . The continued high level of vehicle output has virtually erased the once serious unemployment threat here. Workers still have plenty to do to keep up with demands for cars and trucks in the immediate future. Conversion to defense work, and thereby a two-fold manufacturing job, is going ahead simultaneously with peacetime output in accordance with soundly conceived plans. Thus, when car production slows next Fall, war work will take up the slack. . . . There will be temporary plant shut-downs from time-to-time in coming months due to parts and material shortages. Car buyers must expect delays in delivery of new models, and substitutions for scarce parts or hard-to-get items. But, under the present economy, the automotive industry is demonstrating a remarkable ability to answer the nation's call to arms and at the same time keep the civilian pipelines of supply filled to overflowing.

WAR PRODUCTION: Currently, motor car makers hold military contracts valued at approximately $6½ billion. These commitments cover such goods as tanks and engines, jet aircraft engines, trucks, range finders, submarine nets, searchlight reflectors, aircraft, propellers, bombsights, navigational instruments, ammunition, projectiles, rockets, various kinds of motor vehicles, parts and sub-assemblies for numerous items. . . . General Motors and its far-flung divisions have defense contracts valued at $3 billion. Chrysler and Ford report orders worth $1 billion each. Packard, Willys, Hudson and Kaiser-Frazer are working on war jobs valued around $1¼ billion. . . . In addition, the Detroit Arsenal has begun construction of a tank research and development laboratory which in time will make Detroit the center of all such vehicle activity in the United States. Here, new tanks, tank destroyers, motorized artillery and other types of tracked vehicles will be developed and placed in production.

CIVILIAN PRODUCTION: The outpouring of cars and trucks since the first of the year has been so far above original indications that veteran observers in Detroit are astounded at the phenomenon. *Ward's Reports*, for example, predicts that all existing production records for a January-June period will be shattered. To date, they report, the industry has built 19 per cent more vehicles than in the same months a year ago. . . . Based upon estimated second-quarter forecasts from various sources, the agency expects car and truck output for the first six months this year to hit 3,900,000 vehicles. That is 233,530 more than the previous record. . . . Looking even further ahead, *R. L. Polk & Company*, which records car registrations throughout the country for the industry, feels 1951 may be one of the three highest production years of the last decade and a half. Should a sizeable cut in manufacturing occur at mid-year as the result of insurmountable material problems or other restrictions, the auto industry will still be left with a "normal" year's output, they point out. Although such a major slash will not satisfy the pent-up demand for new cars, caused by World War II shortages plus the normal replacement market, the amount of production should keep America rolling, the statistical company states. . . . As a result of the 25 per cent cut in use of tires and tubes in March, General Motors, Chrysler and Ford have eliminated the fifth tire on all passenger cars. Other companies are expected to follow suit. There is talk here that rationing may result to prevent scare buying.

INDUSTRY FIGHTS NEW TAXES: Contending that the proposed 20 per cent Federal excise tax on new cars is discriminatory, the auto industry has marshalled its forces to defeat the plan. If it fails, car buyers will see $172 more added to delivered prices. The unwelcome tax bill is expected to reach law-makers by mid-summer. . . . Through the Automobile Manufacturers Association and other trade organizations representing various branches of the industry, the car makers charge that such a tax threatens "to deny necessities to the public and to weaken the American economy." The average purchaser of a new car is already being assessed about $93 by the Federal Government, William J. Cronin, managing director of the AMA, points out. Under current government proposals the total excise tax will jump to $265. . . . Surveys show indisputably that workers, farmers and most other segments of the population depend upon automobiles for essential mobility, Mr. Cronin says. More than half of all car use is for necessary purposes such as going to work, shopping, business calls or trips to the doctor. Such dependence upon motor cars increases during emergency periods, as shown by the experience of the last war

OLDSMOBILE quietly released the long-awaited "Super 88," with wider, roomier body, same engine, revised suspension layout, better ride

STYLE-WISE, the "Super 88" boasts 50 per cent improved visibility, has a decorative, identifying sash on rear fender, comes in five body styles

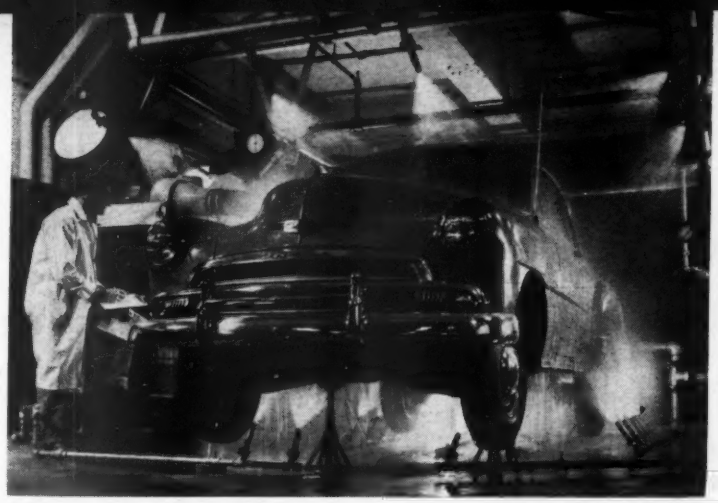
when 75 to 100 per cent of the workers in war plants drove to their jobs because no other transport means were available. . . . No one in the industry is seeking to avoid a legitimate tax obligation during a national emergency. They would like to see any necessary new taxes levied more equitably, also being imposed on products not now carrying excise taxes. In addition, the industry advocates that such excise taxes carry provisos automatically eliminating them once the crisis ceases to exist.

NEW CAR FOR 1951: Another new model is currently being displayed in showrooms across the country: *Oldsmobile* has quietly released the long-awaited "Super 88." . . . The *Oldsmobile* features a wider and roomier Fisher Body. Its engine is the same as that used in the 98 series and the standard 88. Although the Olds engine has been altered to permit satisfactory use of fuels with lower octane ratings than prevailed prior to the defense emergency, company engineers continue to recommend premium gasoline for best performance. Style-wise, the Super 88 boasts improved vision as the result of a new wrap-around rear window. Visibility is increased 50 per cent. As an identifying mark, the car features a decorative sash which extends from the shoulder of the rear fender diagonally downward to the gravel shield. From an engineering standpoint, emphasis is being placed on improved riding qualities. A new suspension system composed of 58-in.-long rear leaf springs and coil springs in front contribute to better riding qualities. The new series features five body styles: the Holiday "hardtop" coupe, club coupe, convertible coupe, two-door sedan and four-door sedan. . . . Nash will soon be offering a new body style in its Rambler line. Announcement date not yet set.

PLANS FOR 1952: As of this writing the auto industry still has plans to bring out 1952 models, according to the best available information here. . . . If there are no government restrictions imposed upon manufacturers, next year's lines will be introduced to the public on schedule. Several sources indicate that should a halt to new car plans be called, the industry will place its newest creations in "cold storage" until times become more propitious. . . . Rumors and predictions point to extreme changes in many of the 1952 cars. Some insiders hint they will be the most radical in recent history, even to setting new style trends.

"LOST GENERATION" OF CARS: An unusual study by the Automobile Manufacturers Association, which is currently being presented to state and national governmental organizations, reveals there are no "middle age" cars in America today. Thereby the trade association uncovers a weakness in the nation's automotive transportation system which could prove a serious handicap in the event an all-out mobilization program is ordered. It is one of the basic reasons why the motor car industry will officially oppose any production cuts at this time. . . . The AMA says that five-, six- and seven-year-old models are missing from the passenger car population, and that this represents the "lost generation" of automobiles. Their ranks are being filled largely by veterans eight or more years of age. Post-war production has replenished the supply of young cars, but it has not made up for the vehicles that by now would be middle-aged. . . . Lack of this in-between group of cars creates a serious gap in the supply of used cars, upon which a great proportion of the population depends, the AMA reports. The survey shows that 73 out of every 100 car-owning skilled or semi-skilled workers buy used cars. About three out of every four cars bought by unskilled or service workers are used. Sixty per cent of motoring farmers buy used vehicles. All told, more than six out of every 10 automobile owning families in the United States purchased second-hand machines. . . . Before the last war about 25 per cent of the registered automobiles were in the middle age group. Today there are none. Thirty-three per cent of cars on the road now are over 10 years old, and 50 per cent have been in use at least eight years. Since these old cars drop out of service at a high rate, the nation's supply of automotive transportation will diminish rapidly if the flow of new cars is cut off, the AMA concludes.

SAFETY LESSON: Marshall Teague, winner of the 1950 Grand National Stock Car Race at Daytona Beach (reported in last month's MOTOR TREND), offered auto manufacturers some first-class safety hints during a recent visit to Detroit. . . . The champion driver feels that modern cars possess too much speed for most motorists. He believes the industry is sacrificing safety for the average driver by building too much comfort and speed into present-day vehicles in view of current highway and traffic conditions. Among his suggestions for increasing safety are: improved roadability, larger brakes to compensate for more powerful engines, reinforced wheels, tighter steering and lower centers of gravity. . . . Teague drove a 1951 Hudson Hornet with only 167 miles on the speedometer to victory in the Florida classic. He averaged about 83 mph over the 160-mile course, and estimates it was equivalent to a drive of 50,000 miles.



FIVE HUNDRED gallons of water being blasted at a Chevrolet in the Fisher Body plant as a test of water-tightness. Interior has a vacuum

ODDS AND ENDS: Three automobile companies are expanding testing and research facilities in the Detroit area. General Motors, Chrysler and Packard have acquired new proving grounds which will enable them to handle both peacetime and wartime assignments. GM is building up 1000 acres of land adjacent to its world-famed proving center. The new area will be designed for testing all types of military combat and transport vehicles. Chrysler has acquired 3,800 acres of land about 50 miles west of Detroit. The corporation thus becomes the last of the Big Three to operate its own proving area. Packard has added over 55 acres to its facilities for the handling of its new defense contracts. . . . Many car makers are taking unusual security measures to protect against possible bombing attacks in the Detroit industrial region. Ford, for example, has micro-filmed more than 1,250,000 vital designs and engineering tracings so that it will be able to go back into business in the event of a major disaster. At least 3,000,000 additional microfilm records are scheduled to be made. Storage is in bombproof underground vaults. . . . The accompanying photograph of a 1951 Chevrolet being blasted with water is one of the many unusual tests the industry has devised to improve cars. This particular experiment was developed by Fisher Body. In the test, five hundred gallons of water are shot at the car under abnormal pressure while a vacuum created inside the body tries to pull in some moisture. . . . According to a recent statement by oil industry spokesmen there will be plenty of gasoline for both civilian and military needs this year. Oil economists expect to see an increase of about 10 per cent in the amount of fuel consumed this summer.

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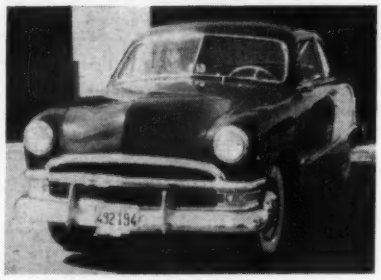
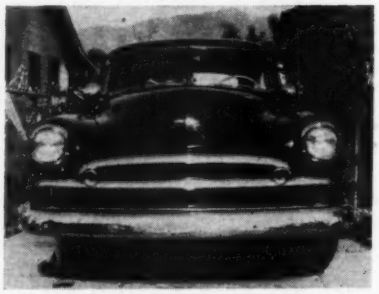
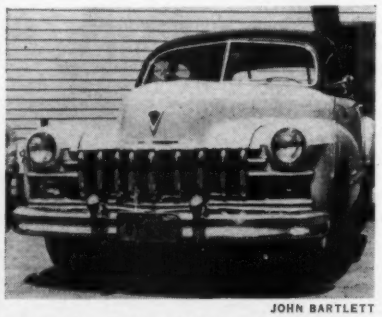


REVAMPED '50 Ford Grille has had center piece removed, uses four other side pieces brought to point, rechromed, to form new grille. Hood had piece welded in; chrome strip removed and filled. Work was done for owner A. J. Fisher, Portland, by Alex McPherson of Hillsdale, Ore.



GRILLE of '50 Chevy, owned by Richard Lopez of Monrovia, Calif., has had small vertical bars under parking lights removed. Other restyling includes removal of emblem, strips and guards

COMPLETELY stripped of chrome is this '40 Chevy, owned by Dane Carr, Huntington Park, Calif. Grille is center piece from a '47 Chevy



JOHN BARTLETT

UNIQUE installation of '47 Studebaker bumperettes on L. P. MacCoon's '47 Cadillac. Guards are bolted only at top. In event of accident to grille, bumperettes shear off without damage

SOUND OFF!

NOTE: Since stating in the August '50 issue of MOTOR TREND that we would publish our readers' complaints about their new cars, we have been deluged with such letters. In the October '50 issue we published excerpts from some of these letters and will continue to do so in an effort to acquaint the automotive manufacturers with the likes and dislikes of the motoring public. If you have a complaint or suggestion, address your letter to SOUND OFF!, MOTOR TREND, 1015 So. La Cienega Blvd., Los Angeles 35, Calif.

★ ★ ★

THE FORD 6 is good on gasoline, pickup and performance; but the bad fault is its laboring on the hills. Surely, this could be remedied. There are other cars, when loaded, that can take the hills in stride, and they are six-cyl. low price cars, too.

John Ewing
Louisville, Ky.

★ ★ ★

. . . I'D LIKE to offer a few comments regarding my 1950 Dodge Wayfarer sedan. The car delivered new in Boston for $1868, plus accessories which made a total of $2100. It is remarkably little car for so much money.

My specific complaints are as follows: (1) Very great transmission of engine noise to the car interior, partly through the heater duct, (2) Ring and pinion gear noise, very marked when coasting or at light loads, possibly due to gear tooth interference, (3) Numerous rattles and squeaks, (4) Snapping noises in the body structure when subject to torsional stress, as when driving over irregular, rolling surface, (5) No key-operated lock on the left hand door, the lack of which is a very great inconvenience in parking lots. (The short wheelbase 1950 Plymouth has key lock on the left side, so why not Dodge Wayfarer at $300 more?)

Frederick M. MacDonald
Stoneham, Mass.

★ ★ ★

I HAD a 1949 Chevy Fleetline two-door, and think they are a good car for the price, but do think they lack quite a bit in driving quality. I had mine checked a couple of times with hopes of improvement but it seemed to be just that way. On a real calm day it was pretty good, but the least crosswind bothered it like the dickens. Mine did about 17½ mpg, which I considered fair, but some of the fellows around here are getting much less, with some as low as 13 and 15 mpg on a trip. They are losing lots of popularity around here on this count.

I now have a 1951 Pontiac 6 two-door with conventional transmission and what they call "economy rear axle." The Pontiac drives much better and also has a little higher cruising speed. The dealer I bought the car from doesn't know just what the rear end ratio on this car is, but it must be less than what the Chevy was. I think the pick-up with this car is about as good as the Chevy. I am going to time it sometime and see just what I can do. My biggest gripe with it so far is road noise and metallic clicking of pebbles when driving on gravel. I am going to have it undercoated and feel sure it will help.

M. W. Lund
Yetter, Iowa

★ ★ ★

. . . I PURCHASED new a 1950 Chrysler Saratoga (8 cyl.) last September. By now I have 8000 miles on the car but it has never stopped burning oil. I only get 600 to 700 miles per quart or less, which to my mind is very poor for a supposedly high class automobile. I broke the car in at generally lower speeds than were recommended by the agency and do not cruise at speeds in excess of 70 mph, usually less . .

John G. Lincoln, Jr.
Columbus, Ohio

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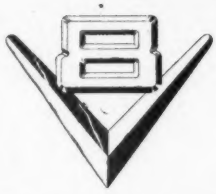

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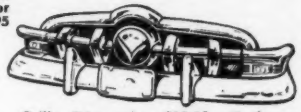

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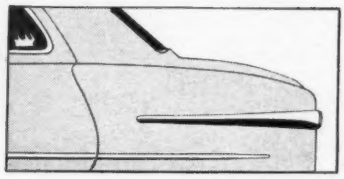

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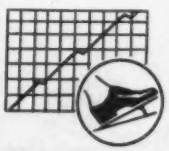

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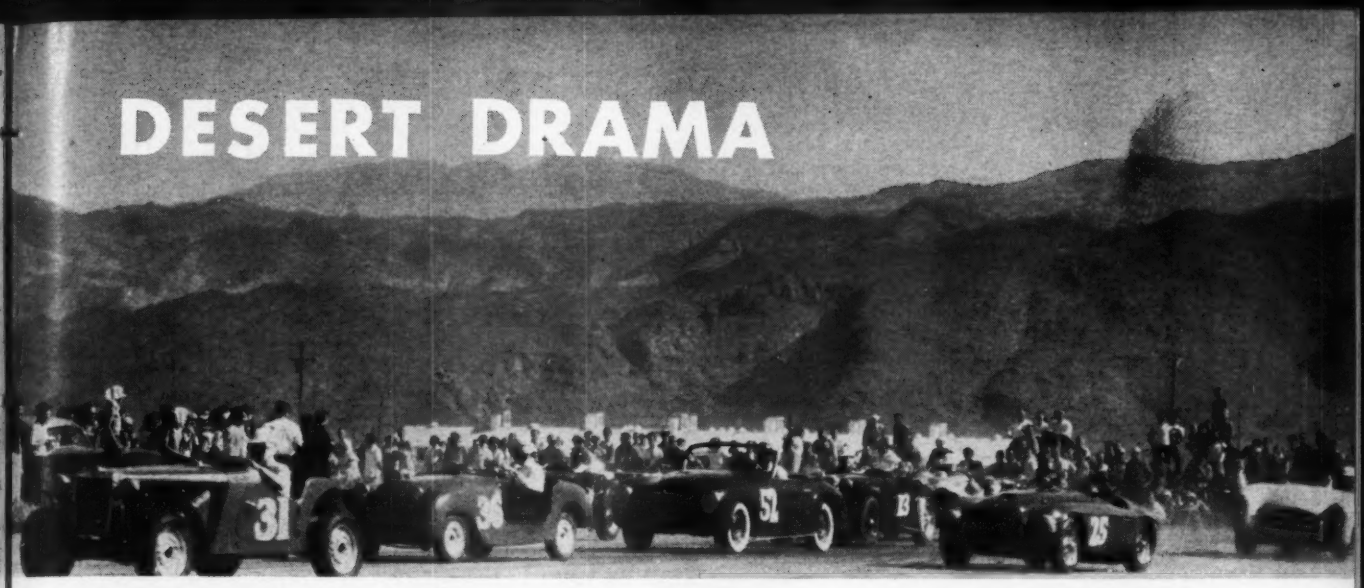


TRUE INTERNATIONAL COMPETITION AT PALM SPRINGS

by G. Thatcher Darwin

PHOTOGRAPHS BY E. RICKMAN

NOTE: As far as presstime is concerned, the Palm Springs Road Race could not have happened on a more inopportune date. We were able to condense this much information into this issue before we went to press. Because of the many technically interesting cars that competed in this event we will devote additional space in the next issue to photos and descriptions of these cars.—Editor.

A SPECTACULAR Ferrari victory climaxed the second annual running of the Palm Springs Road Race, conducted by the California Sports Car Club on April 1. Proving the vaunted superiority of the Ferrari to be no mere dream, Marshall Lewis roared through the field to take the lead, holding on to it until the finish. The sleek red car owned by Jim Kimberly of Chicago went the 150 miles non-stop in 2 h 42 m 39 s, displaying very impressive reliability.

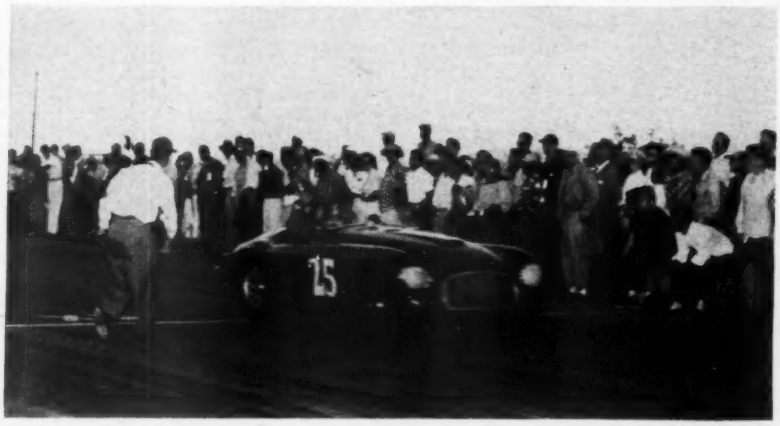
SECOND PLACE winner Armstrong (Cad-Allard) overtakes Barlow (Simca), a masterful driver, whose ability made up for a mere 1221 ccs

Second place went to Jack Armstrong (Cad-Allard); third, E. Forbes Robinson (XK-120); fourth, Don Parkinson (XK-120); and fifth, Jack McAfee (blown MG). The grueling pace left only

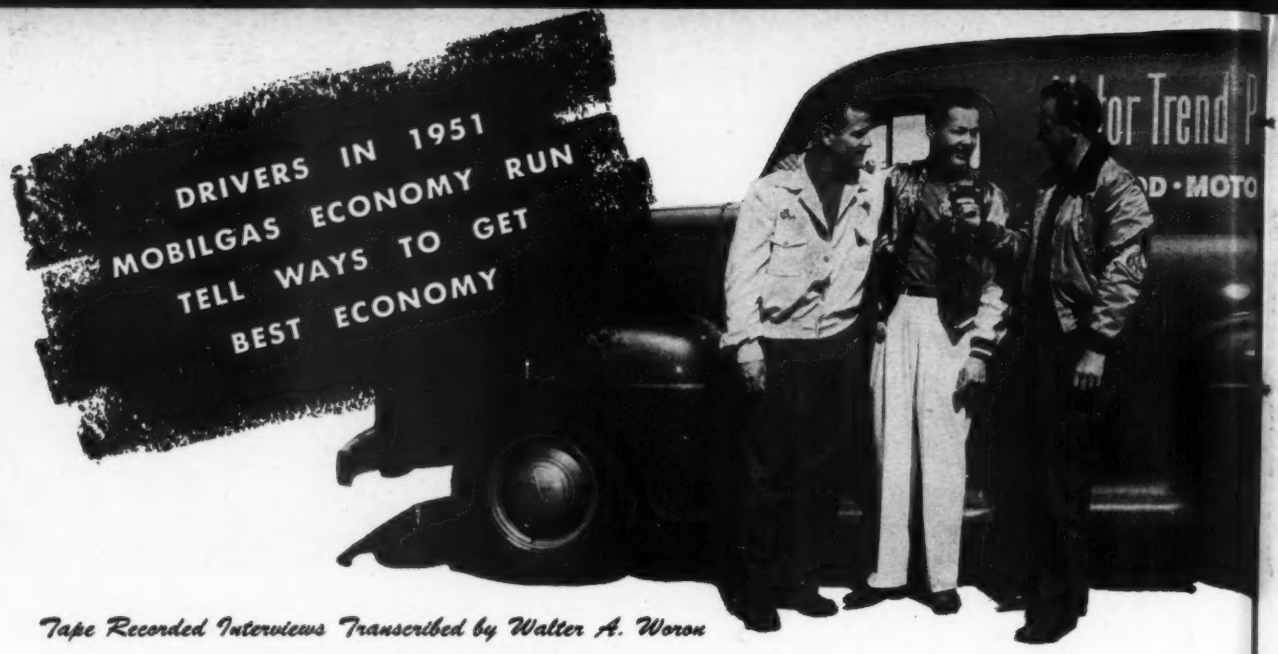
(Continued on page thirty-three)

VICTORY without strain: Lewis drove a calm race, was two laps ahead of the field at finish

JIM SEELY (Cannon Sports) pursued by Michael Graham's Cad-Allard (day's fastest time: 2m17s)

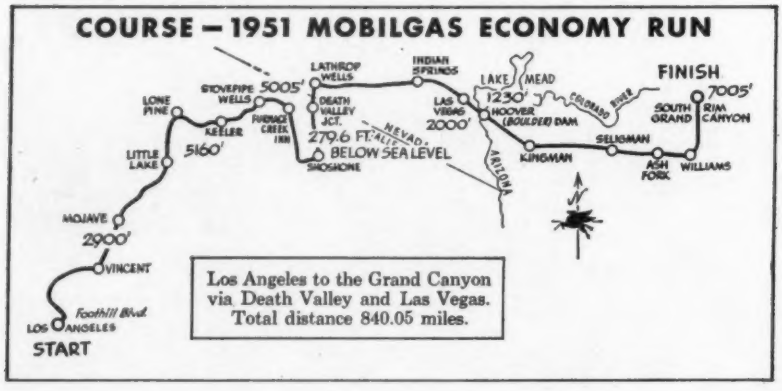


DRIVERS IN 1951 MOBILGAS ECONOMY RUN TELL WAYS TO GET BEST ECONOMY



Tape Recorded Interviews Transcribed by Walter A. Woron

PHOTOGRAPHS BY THOMAS J. MEDLEY



EDITOR Woron makes tape recording interview of 1950 and 1951 Mobilgas Economy Run winners: Bill Stroppe (left) and Les Viland (right), driver of winning Lincoln tell how they drove

FLASH! LINCOLN wins 1951 Mobilgas Economy Run with ton-mpg figure of 66.484 and mpg figure of 25.448. Thirty-two stock cars average 23.9 mpg at speed of 40.6 mph on grueling 840-mile trek from Los Angeles through Death Valley and Las Vegas to south rim of Grand Canyon.

What happens? How does Mr. Average Motorist accept this information? Let me take you to an imaginary discussion between Mr. Joe Doakes and myself.

Joe is an average citizen—he drives one of the 32 makes that competed in the AAA-supervised General Petroleum-sponsored Mobilgas Economy Run. In a year he puts 10,000 miles on his car, mostly hard driving: fast starts and quick stops, with a long trip thrown in once in a while.

Why should Joe ask these questions of me? He might ask them of anyone, even himself. But, he asks me because he knows that I went along on the Run, was careful to record things of import, and being the editor of a motoring magazine, have more than a casual interest in the event.

What's Joe's first question? Let's see.

Mr. Doakes: What good is this information to me? I can't get that kind of mileage.

Answer: Maybe you can't get as good mileage; the Run at least shows you that under the right driving and maintenance conditions such mileage is not out of the question. But, will you drive a car at a steady, conservative speed for hours, accelerate slowly from a standstill, and drive a steady pace through traffic? You'll have to do those things if you expect to get phenomenal mileage.

Question: I suppose so, but what's the purpose of the Run?

Answer: Joe, let me introduce Mr. Will Mount, Manager, Product Engineering, Socony Vacuum. He can answer that for you. "The Mobilgas Economy Run is an opportunity to see what the new cars will do from a mileage standpoint. We try to point out that there is something missing in what the public is getting out of their cars. What we do is follow through at the end of the Run with ways showing how the public can improve mileage. It is an opportunity to demonstrate the high mileage potential built into all cars. Of course, we tell them they can't get the same mileage as on this Run."

Question: Why is that?

NASH makes turn-off at Furnace Creek in Death Valley, not far from lowest spot in United States, Badwater, 279.6 ft. below sea level

Will Mount: Because of the very careful driving technique employed on the Run. The average driver just won't work at it quite that hard.

Mr. Doakes: What's this ton-mpg figure they quote?

Answer: Ton-mpg means nothing to you. It's merely a method of rating to determine the winner on an equitable basis, regardless of size or weight. If such a system were not used, the lightweight cars would always win. The ton-mpg rating at least gives the heavier cars a chance to compete, since they do have to haul extra weight.

Question: Why did they pick this particular route?

Answer: Joe, let me introduce Mr. Frank Meunier of General Petroleum. "This year's course was considerably tougher than last year's—840 miles—in which every possible driving condition that could be met in a year of normal driving was encountered: high winds, freezing temperatures, hot summer weather in Death Valley."

Question: Do all the cars go at the same speed?

Answer: Relatively so, because there is an elapsed time in which they must complete the Run. From Los Angeles to Las Vegas must be made in 13½ hours; from Las Vegas to Grand Canyon in 7 hours, 25 mins. There's a stopover at Las Vegas after the first day. Average speed has to be over 40 mph to make it.

Question: How many people are carried?

Answer: A minimum of two persons—driver and observer. There is a weight limit imposed on each car of 750 lbs. This is a minimum figure and anything above this amount is not counted in the ton-mpg rating. This load is carried in passengers and lead weights. The AAA Contest Board feels that this payload represents the normal load carried by the average driver on such a trip.

Question: How is mileage checked?

Answer: I'll let race-driver Henry Banks, one of the official timers on the Run, answer that for you. "The cars are leveled up carefully before they are first topped off at Los Angeles. They are filled to within four to six inches from the top of the filler neck and are marked. They are topped to exactly the same position at the Grand Canyon after they have been leveled and filled."

Question: What about refueling?

Answer: When the cars come into the official refueling stations, the seal on the tank cap is removed by a AAA official. Observers must witness car refueling, recording the meter readings. They can't refuel at any place but an official station, otherwise they are disqualified.

Question: What happens to the cars after they've been refueled?

Answer: Again I'll let Henry Banks answer that. "As soon as all the cars are refueled, they are taken to the garage, where they will be inspected to make sure that all seals are intact and that the timing is in the correct position. If there are no protests, they will be brought back to the impound area."

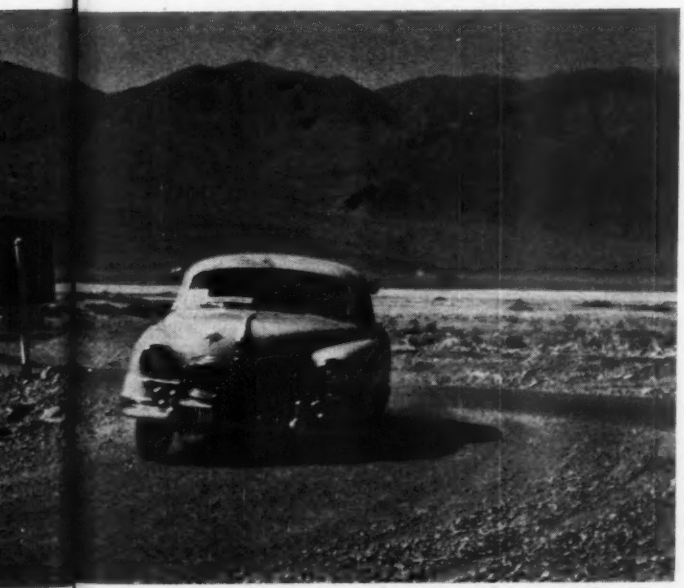
Joe: They say all the cars were stock. How do we know that? I'll bet they were all tuned to perfection.

Answer: You know they were stock by the fact that they were picked up by the AAA Contest Board from dealer's showrooms, factory assembly lines and factory warehouses. The manufacturers didn't know when the Contest Board officials would show up to select a car. After the car was selected it remained under AAA supervision at all times, including the 4500-mile break-in period. Naturally, the

(*Continued on page thirty-five*)

PRECISENESS of fuel topping at Grand Canyon is evident. Car has been jacked up so that it is perfectly level (note pointer and mark on fender); tank is filled to same mark on filler neck as originally at Los Angeles when it was fueled

WINNING sponsor (Bob Estes), winning driver (Les Viland), winning car (Lincoln) all pose together with C. H. Beesemeyer, V.P., General Petroleum (sponsors of Mobilgas Economy Run)



THROUGH the rugged Argus Range (below), peak of 5160 ft., and down into Panamint Valley was one of the toughest parts of course. Here is Chevrolet, last of starters, last finisher

A CAR that draws "ahs" and "ahs" wherever it is seen, the Skylane Motors Special. Owner L. J. Viersen spent 30 long months building it

A COLUMN shift was used to provide more legroom. Steering wheel is '46 Mercury. A tubular-shaped runningboard is used to provide entry

Skylane Motors Special Named

"CONVERTIBLE of the YEAR"

PHOTOGRAPHS BY E. RICKMAN

SMALL DOOR in front of spare tire enclosure is for jack, lug wrench and other necessary tools. Olds 98 tail lights were added after Motorama to squelch comments there to affect that entire Continental rear assembly was used

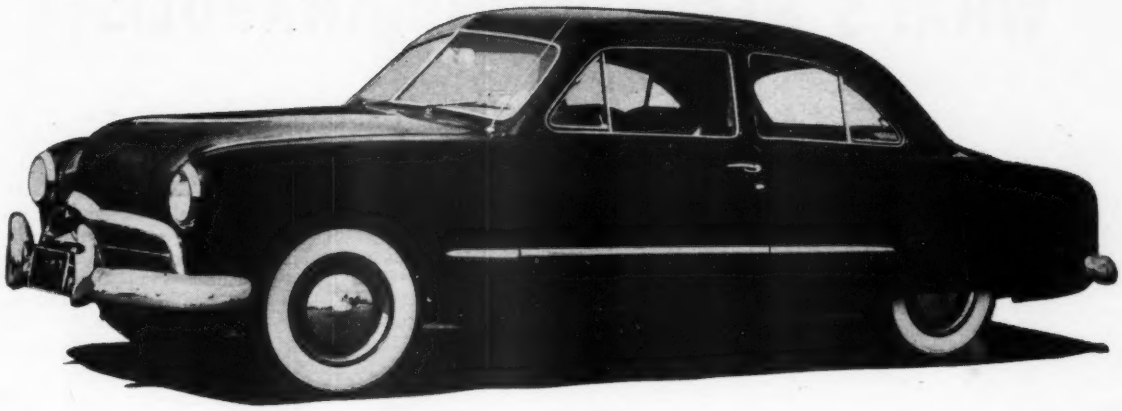
THREE YEARS ago L. J. Viersen, Jr., of Sun Valley, California had a desirable dream—that of building a custom car unlike any other ever built. With the help of his son, Leroy, perfectionist Viersen pitched into the job. Before he was completely satisfied with his product, 30 months had flown by and he had rebuilt the car six times.

Attesting to the fact that Viersen poured sweat and toil into the fire-red Skylane Motors Special was the recent selection by Hollywood columnists of the car as "Convertible of the Year."

The seamless body, consisting of '48 Buick front fenders, '48 Lincoln Continental rear fenders, a '49 Cadillac grille, and the necessary paneling to flow all these parts together into the desired contour are mounted on a '32 Ford frame. The height of the car at the cowl is 36 ins., with only 50 ins. between the ground and the top of the '50 Cadillac curved windshield. From center to center of the 15-in. Lincoln wheels is 100 ins.; overall length is 15 ft.

The Pierson Top Shop upholstered interior of the Skylane Motors Special has been well-thought-out, having provisions for two; driver and passenger sit on the foam-rubber cushioned, top-grain leather upholstered single seats. Crash-padding, also covered by genuine leather, completely encircles the doorless cab compartment. The center panel of the instrument board is from a '33 Auburn, rebuilt to take the '41 Buick instruments. A tachometer is also provided on the left.

Powerplant of the Viersen-built car is a '48 Mercury with stock bore and stroke, using 9:1 compression heads, a dual intake manifold, a ¾ cam, special ignition, Zephyr flywheel and clutch. Rear axle ratio is 3.54:1.



BRITTON'S BEAUTY

PHOTOGRAPHS BY E. RICKMAN

CUSTOMS come and customs go, but for some reason Fords seem to be the most popular car for restyling. Custom fans are even becoming somewhat blase about restyled or customized Fords. So when you can get these fans to turn their heads to look at a Ford custom, then you have something.

The someone who has this something is Don Britton, Hollywood, California. His car, seen in the accompanying photographs, is so different that he has actually had people ask him if the car is a new stock model. What makes it different is the fact that a four-in. piece has been taken out of the body, reducing the body depth and lowering it by that much.

To accomplish this work, Chuck Calvin, of Encino, first carefully measured the amount to be cut out through the fenders, doors and body. Then, with tin snips and a metal saw, he cut out this section. When the top and bottom halves were brought together, the fit was so perfect that Calvin did not have to use a welding rod—he merely fused the metal edges together with a torch.

It was not necessary to alter the frame, and the hood and deck fitted right into position. The hood and deck, however, were both shaved, with a pull handle installed for the turtledeck. A metallic maroon paint job by Ted Nielson completed the job.

Since the top was actually dropped four ins., it was necessary for Howard Markel, Beverly Hills, to rework the seats. The lower movable section of the front seat was removed, the seat being lowered by that much. The rear seat cushion and springs were rebuilt. The dash remains stock, but the steering wheel was dropped to compensate for seat drop.

UPHOLSTERY fabric is Cohyde plastic, in gray and black. Entire interior was fashioned by upholsterer Howard Markel of Beverly Hills

STRIKING difference between stock '50 Ford and Britton's custom is apparent. Grille consists of a top Ford section and a center bar reminiscent of the Kaiser. To further change it the spinner is not used

RIDGES in side of rear fender and tail lights were removed. Stock bumpers have guards with tail lights and parking lights as integral parts

WHAT'S NEW FOR INDIANAPOLIS?

by Gordon Betz

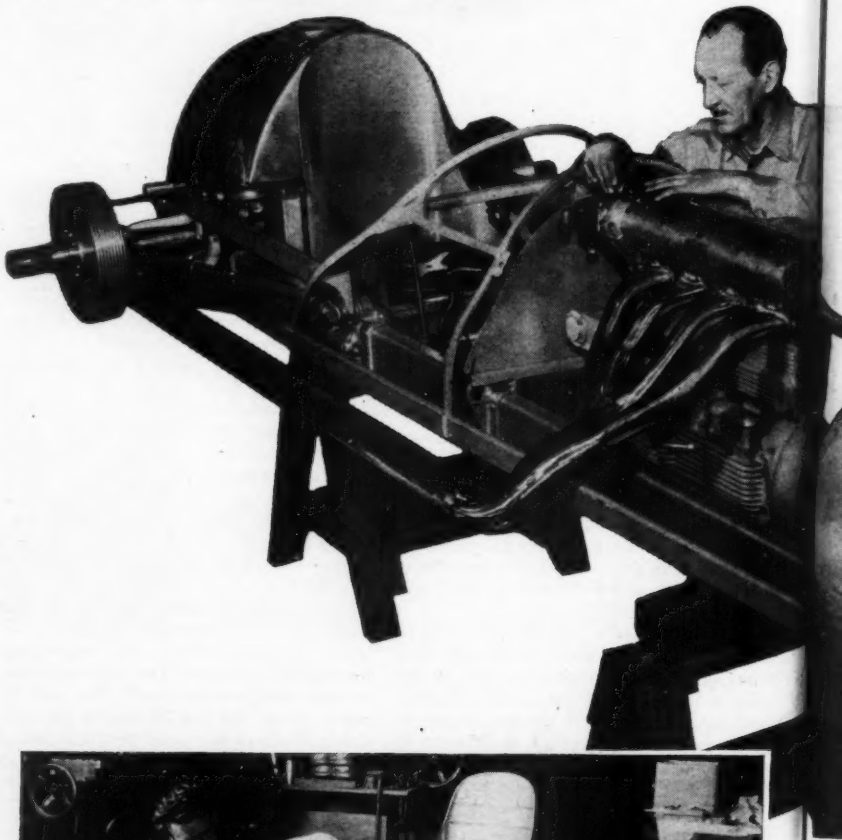
AAA ZONE SUPERVISOR

THIS YEAR'S '500' will be the fastest, the most exciting race in the history of America's greatest speedway." That's the conviction of the men who build the cars—the men who are most in the know. Agreement is general that lowest qualifying speeds this year will be around 133 mph and that many cars will push 140.

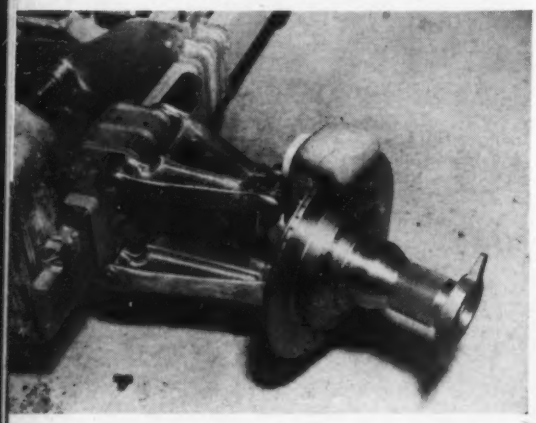
There are many good reasons for this quickening of pace, the greatest single factor being the new Firestone racing tire, which adds two to five mph to the top speed of the cars that can use them. Many cars have tried to use these new hoops and failed. The tires' terrific traction on the driving wheels causes the front wheels (on rear-drive cars) to pull toward the infield, the only cure being a reworking of weight distribution.

The 270 cu. in. Meyer-Drake engine—the ever present Offy—has had its lower end redesigned, now uses a stiffer crankshaft, bigger main bearings and supports, all of which will make for improved reliability and smoothness of running. At least 10 of these new Offys will run on the Indianapolis bricks. Many will be equipped with Hilborn-Travers fuel injection systems and engines so equipped have been developing 330 bhp at 5000 rpm, on methanol.

This year's brickyard grind will see new lows in chassis weight, thanks to the growing trend toward dural and magnesium frame components. And there'll be ultra-modern front drive jobs that should set new highs for cornering at speed. Come with us behind the scenes, to the little shops where the Big Cars are built. . . .

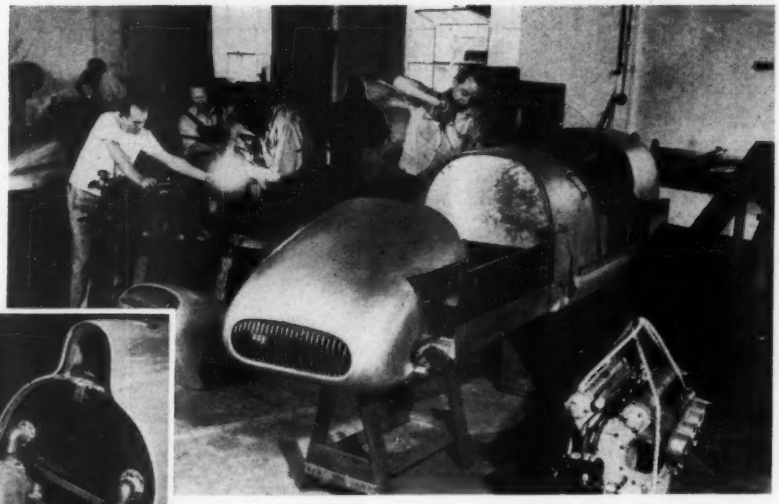


EMIL DIEDT (right), one of the oldest chassis engineers in the game, is building this remarkable front-drive machine for Mack Hellings. It's fully torsion bar-equipped, frame and cross-members are all of dural, giving the car an all-up weight of about 1725 lbs. Front-drive unit was designed by Leo Goossen and its constant-velocity U-joints alone cost a cool $1500

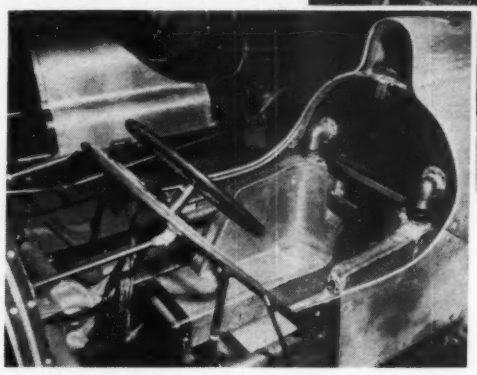


SCHROEDER-DESIGNED cars are notable for their use of Goodyear aircraft spot-type brakes (above). The large braking disc is of steel, hard-chromed to resist wear, drilled to aid cooling. The two brake "spots" are contained in the hydraulically-controlled unit which hooks over the brake disc. There is no fade with this system; braking improves with temperature rise

BOB BALL, sensational newcomer from Phoenix, Arizona, will drive this unusual machine (right), designed and built by Gordon Schroeder, (left). The frame is of box-section, heat-treated aluminum, uses magnesium cross-members. Engine runs Hilborn-Travers fuel injection, pulls 332 bhp

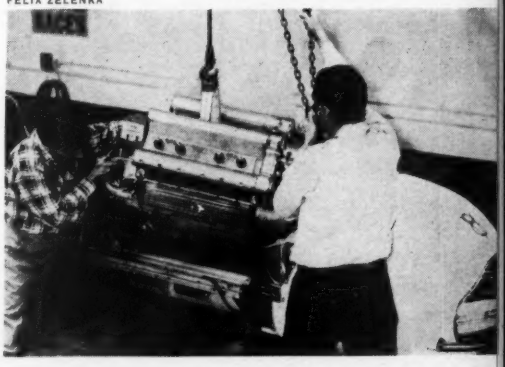


KURTIS-KRAFT shops are busy with the production of more cars of their famous 3000 Series. Job with headrest will be driven by Carl Forberg, car in foreground goes to Sam Hanks. These machines, powered by 270 cu. in. Offys, use torsion bar springing all around, weigh just under 1700 lbs., are noted for sharp looks



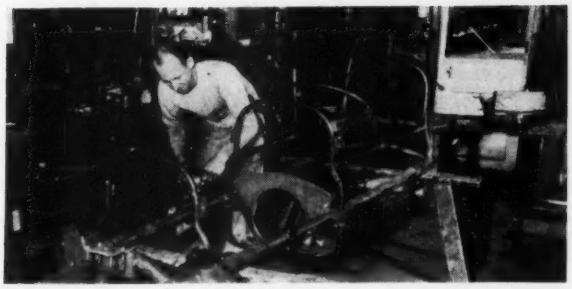
KURTIS 3000 Series cars are remarkable for their form-fitting fuel tank arrangement (left), in which auxiliary tanks pass around and under the driver. Counting contents of Firestone synthetic rubber main tank in tail, total fuel capacity is 72 gallons. Seven of these Kurtis jobs are entered

FELIX ZELENKA

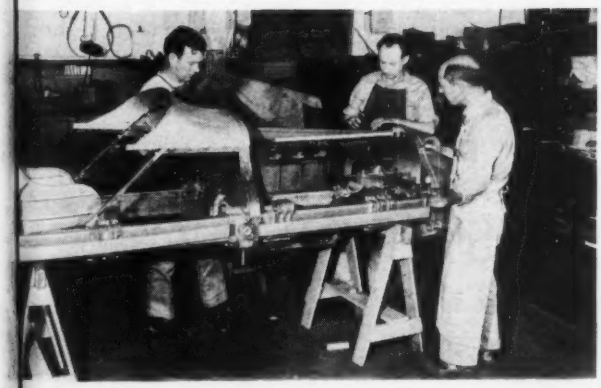


NOVI PURE-LUBE Specials (right) were designed and built by the late Bud Winfield in '46 and '49, a.e powered by 183 cu. in., dual oh cam V-8 engines which develop about 500 bhp at 7800 rpm. Jean Marcenac (wearing beret) has made minor modifications to these formidable supercharged front-drive cars, faithfully following Winfield's own plans, will enter both cars

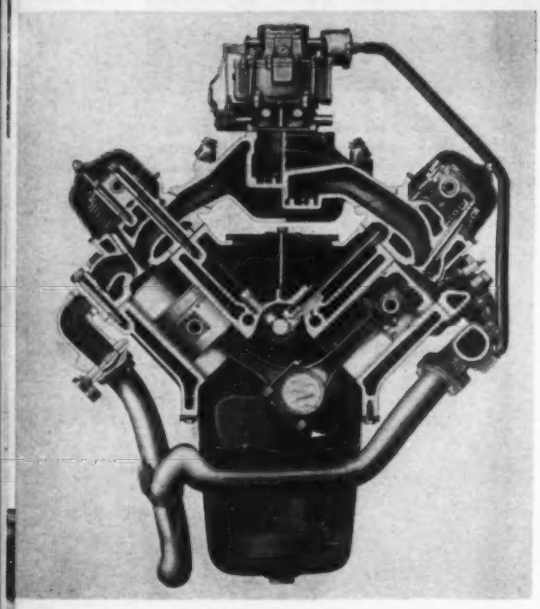
PHOTOGRAPHS BY E. RICKMAN



EDDIE KUZMA at work (above) on the frame of J. C. Agajanian's newest car. This tubular layout is made of chrome-moly steel and estimated weight of the finished job is a mere 1600 lbs. It will run a 270 cu. in. Offy and will use torsion bar rear suspension, transverse leaf for the solid front axle. Such are the humble beginnings of a $20,000 machine



LUJIE LESOVSKY (foreground) builds the bodies for Gordon Schroeder's cars, this one (left) being destined for Duke Dinsmore. These machines also feature torsion bar suspension fore and aft, front springing is independent. Steering is exceptionally good, uses separate drag link and worm-sector gearing at each front wheel, does away with the track rod



CUTAWAY of the Studebaker V-8 (left) shows the remarkably good "straight-through" manifolding, which makes for fuel/air flow with comparatively little friction loss. Wedge-shaped combustion chamber focuses expanding gases directly on piston head. Valves slightly slanted

CONTROLLABILITY of the Studebaker (above) is remarkable. Steering is positive and accurate

DEMONSTRATING roadability of the Studebaker is Griffith Borgeson. On asphalt roads there was no need to correct for wandering tendencies

IF YOU'RE the kind of person who likes his cars fast, when you get behind the wheel of an "economy car" you resign yourself to a boring ride. The Studebaker line of cars has always been known as an economy line, but—if you haven't taken a ride in the new Studebaker Commander V-8, you're in for a big surprise.

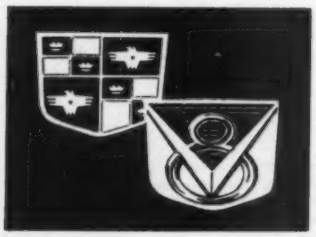
If we—Associate Editor Griffith Borgeson and I, of MOTOR TREND Research—hadn't heard of some of the capabilities and prowess of the Studebaker V-8 prior to the three-day Motor Trial, we probably would have planned for an "economy ride," too. As it was, we were mentally prepared for some outstanding performance from the car. And we weren't disappointed!

The Studebaker Commander four-door sedan delivered to us by the Los Angeles factory was well broken in, registering 3650 miles on the odometer. It was equipped with the Studebaker Automatic Drive (optional automatic transmission). By the time we had returned the car to the Studebaker Corporation we had put 900 miles on it, undoubtedly the ruggedest mileage put on the car in its short life span.

According to all indications, the Studebaker Corporation should be able to sell all the V-8s they can build. They can't miss, offering the public such a package of power and comfort for the money. We were so impressed with the performance of the Commander that we feel no qualms whatsoever in making this prediction.

Test Report

FUEL CONSUMPTION: This feature has always been a selling point with Studebaker. It was thought by many that with the advent of the V-8 engine, Studebaker had at last thrown in the sponge on this score. However, in the recent Mobilgas Economy Run and according to the exhaustive tests which we performed on the car, Studebaker is better off than before. For proof of this you need only look at the figures in the Table of Performance; the *overall average* on the Motor Trial was a phenomenal 21.41 mpg! Between 30 and 45 mph, the consumption remains quite constant,



STUDEBAKER V-8 A TERRIFIC SURPRISE

by Walter A. Woron

PHOTOGRAPHS BY FELIX ZELENKA

increasing as 60 mph is approached. However, even with the disadvantage of automatic transmission (which can mean from one to three mpg less) fuel economy remained quite good.

TOP SPEED: With Automatic Drive, the Studebaker Commander uses a high-speed rear axle—3.54:1. This axle ratio made it possible for us to hit a highest one-way top speed of 93.55 mph and a four-way average of 92.78 mph, a truly commendable performance. Even though you'll probably never travel at these speeds, it's good to know that if you have to you will be able to control the car with no difficulty. Through all these top speed runs the car held the road very solidly. The acceleration curve is quite flat—the Commander reaches top speed smoothly and quickly.

STEERING: The steering wheel has a good feel and is at the proper location for fast control. The center-point steering is accurate and positive. Taking a sweeping curve at 60 or 70 mph, it was only necessary to turn the front wheels to the desired amount—that angle of turn was easily maintained. There was no need for constant rocking of the steering wheel to correct for wandering tendencies in the rear end. Oversteer and understeer were notable by their absence. A minor point of criticism is that if the car is taken into a sharp corner at high speed, the body leans considerably. At all times, however, you can maintain good control, although it is necessary to pull the wheel back to a "neutral" position—the wheel does not "return" itself.

RIDE: The Studebaker holds the road very ably, even with the speedometer needle pushed up near the 100 mph mark. We took a severe dip at an indicated 90 mph (unintentionally, of course) and proved to ourselves that the shock absorbers were put there for a definite purpose. There was no bounce and no bottoming. Over an "ocean-wave" road there is some pitching motion, which is the case with most cars. The important thing to us was that this motion did not affect control in any way. The overall suspension system seems to us to have struck a perfect balance between softness and comfort on the one hand and stability and safety on the other.

ACCELERATION: This factor of the Studebaker V-8 is not its outstanding feature, but it is quite good. The combination of the 120 bhp V-8 engine and a conventional transmission would undoubtedly give any average driver more than enough acceleration. As it is, the V-8 with automatic transmission is more than adequate to cope with all traffic conditions. As with most automatic-transmission-equipped cars, we found that elapsed times for all tests through the gears could be improved by using LOW range, then later shifting to HIGH. A speed of 45 mph seemed to be the best shift point for maximum acceleration.

TRANSMISSION: The test car for this Motor Trial was equipped with Studebaker's "Automatic Drive," a combination of cork friction clutch, conventional hydraulic torque converter and planetary gearing. Two forward speed ranges (LOW and DRIVE) and a reverse are provided by the planetary transmission. All normal driving is done in DRIVE range, although for added acceleration, LOW range can be used, followed by a shift into DRIVE.

We found that automatic gear changes were made with good speed and smoothness, with very little slippage between the driving and driven components. The hill-holding device is positive and a great convenience, although the anti-creep braking feature on the test car was not found to be always reliable. The rear brakes are equipped with an electric solenoid valve that retains pressure in the lines after the brakes have been applied. Pressure on the throttle releases the brakes . . . in our case, a minor adjustment would probably have restored the reliability of this feature.

A downshift to the intermediate range (in DRIVE) by depressing the throttle gives the power necessary for passing. This full-throttle downshift can be made at any speed up to 60 mph. The transmission will stay in this range until you momentarily relieve pressure on the pedal, or until you reach a speed of 70 mph. Braking is possible with this transmission by merely flicking the selector lever to the LOW range, but should only be done at speeds below 40 mph.

BRAKING: A feature of the brakes that definitely appears to be a trend in the industry is that of the widened brake pedal. After a few hours behind the wheel it became quite normal to hit the pedal with the left foot. This is probably the best thing that could happen to cars with automatic transmissions; up to now the left foot has had increasingly less work to do. A right-foot-throttle, left-foot-brake operation makes for quicker co-ordination through traffic and practically eliminates the possibility of the foot slipping off the brake and onto the throttle. We look for the pedal to move farther and farther left, still remaining wide, however.

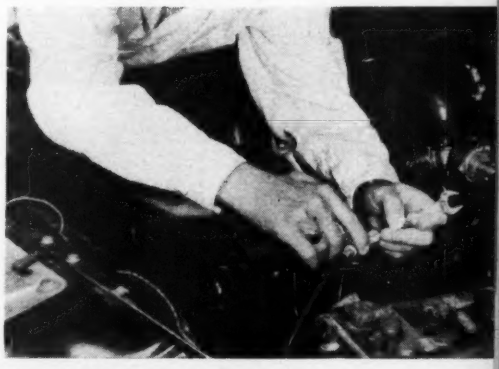
We gave the Studebaker self-adjusting, self-centering brakes a brutal workout and managed to get a loss of efficiency through fade during our braking tests. However, it took severe testing to reduce the brakes to this state and only drivers in stock car races and cross-country rallies need concern themselves with this detail. Our test car was equipped with special chromium wheel covers which obstructed the cooling vents in the wheel discs. Cooling of the drums would be considerably better without these fancy covers.

Mechanical Features

The box-section, double-flanged frame remains substantially unchanged except for some minor front end modifications to allow for the new V-8 engine. Front suspension is of the independent, coil spring and wishbone variety, with rear suspension being by four-leaf, 2½-in.

(*Continued on page forty-six*)

POSITION of starting lever (being pulled for engagement) could be improved. Its location alongside hood release lever caused latter to be pulled unintentionally several times during Motor Trial. The brake pedal has been widened



CONNECTING fuel line from tank line to fuel testing device. Studebaker engineers have provided remarkable accessibility for the mechanic

TRUNK space is adequate; accessibility to spare tire is good. Here, Associate Editor Borgeson is seen removing nuts holding tire in place

STARS AND THEIR CARS

by Eugene A. Jadorquist

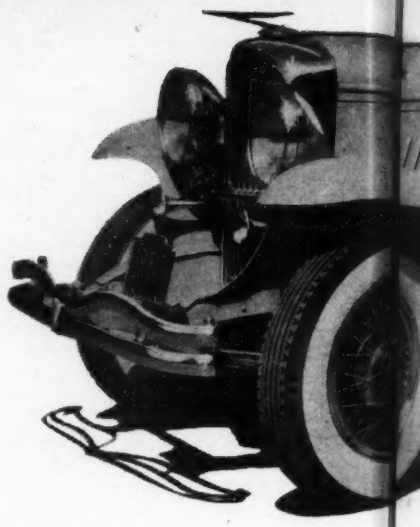
NORMA TALMADGE bought a new Buick in 1936. The Hollywood dealer gave her $500 for the two Rolls-Royces she had owned and driven for 10 years.

It is not recorded that tears of nostalgia shone on the cheeks of the lovely Norma when she parted with her roadster and town car, but it must have been impossible to snap such a strong link to the past days of glory without a whimper. The roadster had been with her on two trips through Europe; the town car had carried her in silent splendor to lavish parties and exciting premieres in the shimmering fairyland that once was Hollywood. In 1926 they had been a $40,000 index to her eminence but by 1936 they had become embarrassing symbols of Norma's decline from favor.

Norma's cars were among the last of the great carriages to be sold into obscurity. By 1936 the great publicity mills had sold the "stars-are-just-like-you-and-me" concept to the world and prudent players lived the common-man role to the hilt. Those who insisted on their right to an Isotta-Fraschini were delicately dropped from the press releases.

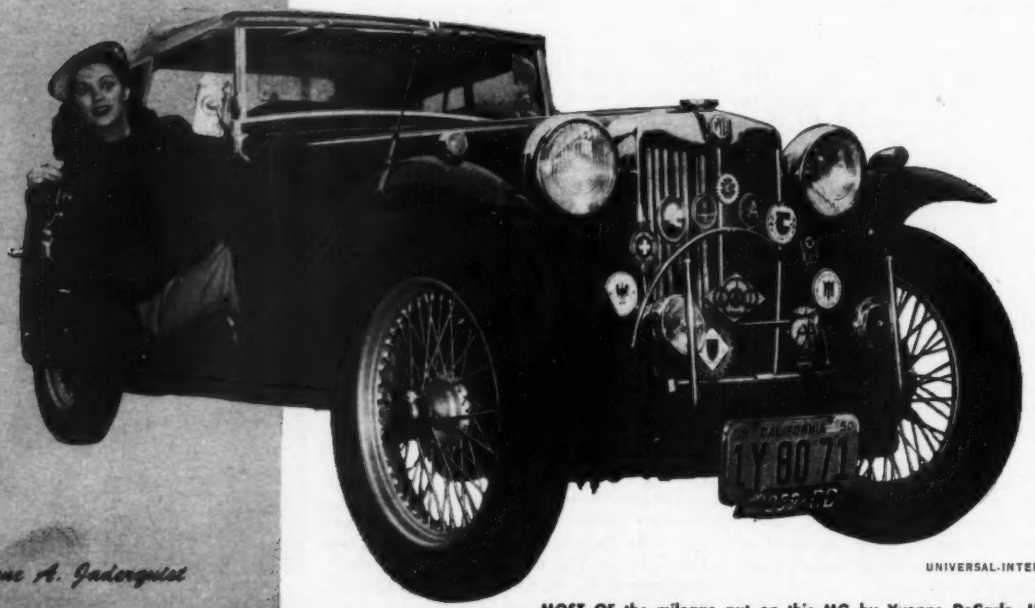
Nineteen thirty-six was the date of another symbolic event—the match race between Phil Berg's Duesenberg "J" phaeton and Zeppo Marx's Mercedes-Benz supercharged model SS roadster. Some of the great stars of the opulent period bought cars for speed as well as prestige, and both the Mercedes and the Duesenberg were popular. The Muroc race involved what were to be almost the last representatives of each make in the movie colony.

A week before the event there had been much talk in a bar in Palm Springs. Speed was the subject, and the Duesenberg and Mercedes factions fought to a verbal stalemate. Near the end of the argument the bet was made—$1,000 to the winning car—and the race was set for the next week.



The Duesenberg received $1,800 in special attention and Mercedes specialist Joe Reindl went into closed conference with Zeppo's car. By the day of the race a caravan of spectators was ready to follow the contestants to the dry lakes. Joe Reindl was driving the German flash and a professional driver sat behind the control panel of the Duese. A 15-mile course, consisting of three five-mile laps, had already been laid out.

From the start, the Mercedes took the lead. For two laps, the Duesenberg tried



UNIVERSAL-INTERNATIONAL

MOST OF the mileage put on this MG by Yvonne DeCarlo, Universal-International star, has been in Europe. Although she bought the car here, she shipped the car overseas and piled up the mileage there

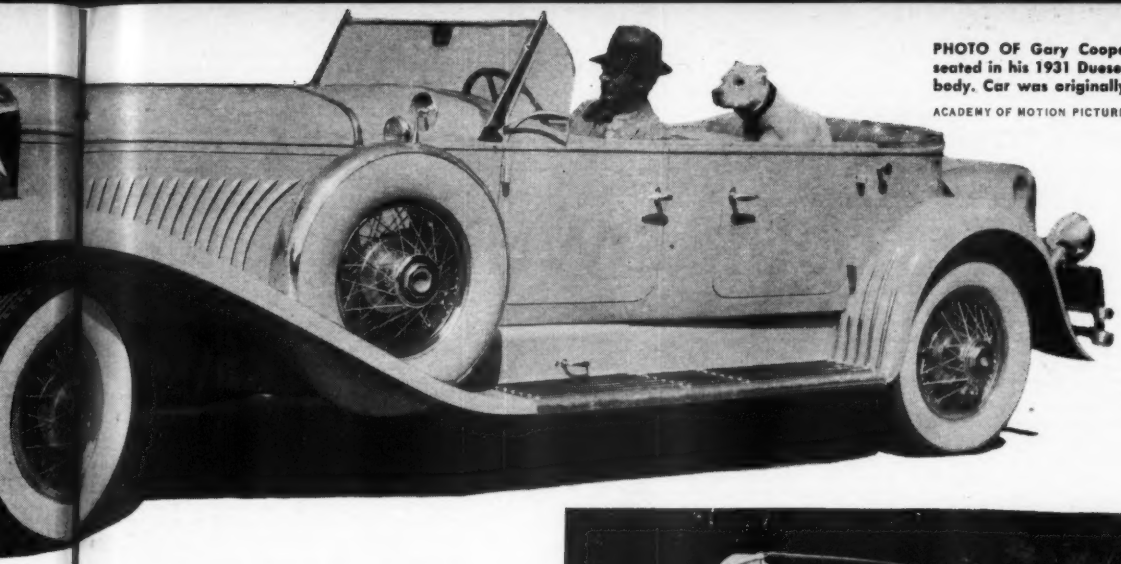


PHOTO OF Gary Cooper, taken around 1936, seated in his 1931 Duesenberg Phaeton, Derham body. Car was originally valued around $17,500

ACADEMY OF MOTION PICTURE ARTS AND SCIENCES

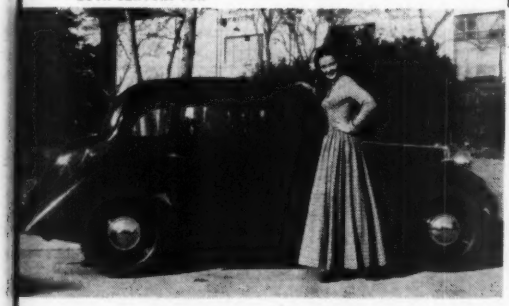
ROBERT SCHUMANN

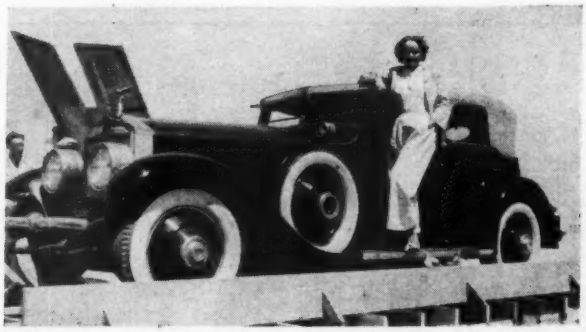
GEORGE STOLL (right), music director at MGM, sits in his "Rapido" V-12 Lagonda Roadster—a magnificent combination of custom coachwork and sporting engine, capable of terrific speed

MARLENE DIETRICH (below right), Rolls-Royce, circa 1931, during filming of picture, "Morocco." Odd contraption in foreground is a sand-sled

GENE TIERNEY (below), star of the forthcoming 20th Century-Fox Film, "The Secret of Convict Lake," stands beside her car—a 1949 MG sedan

20TH CENTURY-FOX



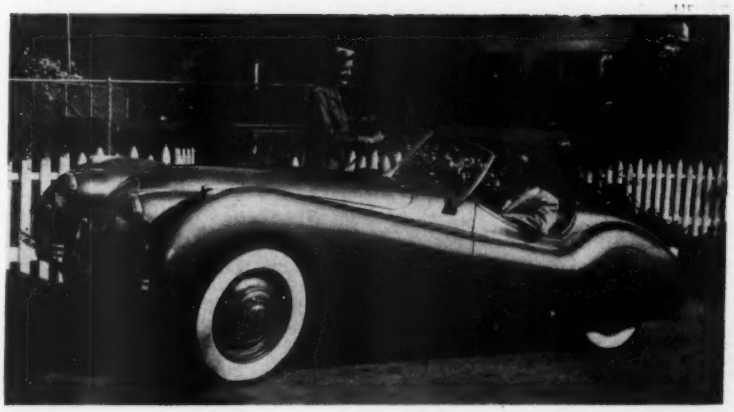


COURTESY OF G. A. MOFFITT

vainly to overcome the narrow gap that remained between the two cars. On the third lap, according to Reindl, the Mercedes got into trouble and began preigniting because Zeppo had not authorized the use of racing spark plugs. Whatever the reason, the Duesenberg pulled ahead and finished first.

In their day the Duesenberg and the Mercedes were not only the fastest, they were among the most expensive automobiles made. It was a rare Mercedes that carried a price-tag lower than $20,000 and the chassis for the Duesenberg cost $9,500. Yet speed-hungry stars happily paid these sums.

(Continued on page forty-two)



SEATED in a Jaguar XK-120 is Humphrey Bogart (right), with his lovely wife, Lauren Bacall, alongside. Bogie uses car for fast transportation

Motor Trend World Car Survey...

RATE YOUR OWN CAR

"HOW DOES MY CAR COMPARE WITH ALL THE REST?" "What's the 'best car in the world'—or the best deal in the world?" "Are European cars really 'better' than American cars?" As a reader of MOTOR TREND, you've probably asked yourself these questions many times. Here are the answers to a million such questions—look the data over and draw your own conclusions, be your own critic. As for the terms, let's break them down.

CYLINDERS: The more an engine has, the smoother it should run.

COMPRESSION RATIO: The higher this figure is, the more energy is extracted from the fuel.

DISPLACEMENT, CUBIC INS.: Mere size is not a measure of power; above all, not of efficiency.

BHP AT RPM: This is the peak horsepower of a stripped engine (no fan, generator, water pump, etc.), developed at its top rotational speed. Rpm is not necessarily an index of engine wear.

BORE/STROKE RATIO: The present trend is toward short strokes, large bores, higher rpm. This permits high rpm without excessive piston travel. The table shows that relatively few manufacturers are using really short strokes today; however, every newly-designed engine is of this type.

PISTON TRAVEL IN FEET PER MINUTE: Friction losses and, consequently, wear, increase vastly as piston speed increases. Piston speed has a greater influence on engine life and fuel consumption than rpm. The 2500 fpm average of American practice is a healthy maximum figure.

PISTON AREA IN SQ. INS.: The total surface of the tops of the pistons. In other words, the area on which the expanding gases are free to push.

BHP PER SQ. IN. PISTON AREA: A more universally valid index of quality of engine design than bhp per cu. in.; a function of bmep.

POUNDS PER BHP: This is, of course, the famous power-to-weight ratio and is a fair measure of a car's acceleration potential.

VALVE ARRANGEMENT: OH = pushrod-operated overhead valves; OHC = single oh camshaft; 2OHC = twin oh camshafts; S = side valve; F = oh and side; TWO = two-stroke.

MAXIMUM BMEP: Bmep stands for brake mean effective pressure and is the average pressure in the cylinder, less pressure absorbed in overcoming friction losses. It is an index of topside efficiency: porting, manifolding, valve gear, compression ratio.

BHP PER CU. IN.: An index of engine efficiency, economy.

MAKE & MODEL	Cyls.	Comp. Ratio	Disp. Cu. Ins.	BHP @ RPM	B/S Ratio	Piston Travel FPM	Piston Area Sq. Ins.	BHP/Sq.In. Piston Area	BHP/ Cu. In.	LBS/ BHP	Valve Arrgt.	Dry Weight	Price@ Factory	$ Per BHP	BMEP @ Max. BHP
AUSTRALIA															
Holden	6	6.5	132.5	60@3800	1:1.04	1980	42.4	1.42	.453	37.0	OH	2220	1827	30.5	94
CZECHOSLOVAKIA															
Skoda 1102	4	6.3	66.4	32@4000	1:1.10	1967	22.6	1.42	.481	58.4	OH	1870			95
Tatraplan	4	6.1	119.0	52@4000	1:1.01	2260	37.1	1.40	.437	51.0	OH	2650			87
ENGLAND															
A. C. Sports	6	6.5	120.5	74@4500	1:1.54	2950	30.8	2.41	.609	36.3	OHC	2688	4000	54.0	108
Alvis-Tourer	6	7.25	182.5	95@4000	1:1.07	2365	51.5	1.84	.521	30.7	OH	2910	4470	47.1	103
Armstron-Siddeley	6	6.5	141.0	75@4200	1:1.43	2756	35.9	2.09	.532	52.2	OH	3920	4920	65.6	100
Aston Martin DB2	6	7.5	157.4	116@5000	1:1.15	2950	44.4	2.37	.737	21.1	2OHC	2450	5360	46.4	117
Austin A40 Sports	4	7.2	73.2	46@4400	1:1.36	2570	20.9	2.03	.628	43.6	OH	2008	1775	38.6	113
Austin A90 Conv.	4	7.5	162.0	88@4000	1:1.27	2930	37.1	2.37	.543	31.8	OH	2800	2560	29.1	108
Bristol 401	6	7.5	120.1	85@4500	1:1.45	2835	31.8	2.67	.708	30.3	OH	2575	6880	80.9	125
Citroen Lt. 15 Saloon	4	6.5	116.5	56@4250	1:1.28	2790	29.6	1.81	.481	42.0	OH	2350	2130	38.0	90
Citroen Six	6	6.2	174.9	76@3800	1:1.28	2620	44.4	1.71	.435	38.5	OH	2910	3170	41.7	91
Daimler 8 Saloon	8	6.3	333.0	150@3600	1:1.41	2835	70.5	2.12	.450	39.3	OH	5900	11522	76.8	99
Ford Zephyr 6	6	6.8	138.0	68@4000	1:0.96	2000	46.0	1.48	.493	38.4	OH	2600	1700	25.0	98
Ford Consul	4	6.8	91.5	47@4400	1:0.96	2200	30.7	1.53	.513	51.7	OH	2430	1487	39.7	92
Fraser-Nash Le Mans	6	8.5	120.1	110@5250	1:1.45	3310	31.8	3.46	.916	13.5	OH	1485	6260	57.0	138
Healey Roadster	4	6.9	149.0	104@4500	1:1.50	3500	31.6	3.29	.698	22.6	OH	2350	5185	49.9	123
Hillman Minx	4	6.6	77.2	37.5@4200	1:1.46	2620	20.6	1.82	.486	53.2	S	1995	1415	37.7	92
Humber Hawk	4	6.3	138.3	58@3400	1:1.36	2450	31.9	1.82	.419	39.5	S	2703	2240	38.7	98
Jaguar XK 120	6	8.0	209.0	160@5200	1:1.28	3620	50.3	3.18	.766	15.4	2OHC	2464	3535	22.1	117
Jaguar Mark VII	6	8.0	209.0	160@5200	1:1.28	3620	50.3	3.18	.766	22.4	2OHC	3584	3570	22.7	117
Jowett Jupiter Conv.	4	7.6	90.0	60.5@4500	1:1.24	2660	25.6	2.35	.672	25.0	OH	1512	3045	50.4	118
Lagonda Conv.	6	6.5	157.8	105@5000	1:1.15	2950	44.4	2.36	.665	30.9	OHC	3248	6980	66.5	105
Lea-Francis Sports	4	7.0	152.2	100@4000	1:1.29	2890	35.2	2.84	.657	24.1	OH	2410	3900	39.0	130
MG-TD	4	7.3	76.0	54.4@5200	1:1.35	3070	21.6	2.52	.716	37.1	OH	2020	1595	29.3	109
Morgan Plus Four	4	6.7	127.4	68@4000	1:1.08	2410	35.2	1.93	.534	23.9	OH	1625	1826	26.9	106
Morris Minor	4	6.6	56.0	27@4400	1:1.58	2600	15.8	1.71	.482	61.2	S	1652	1070	39.6	87
Renault Saloon	4	6.7	45.6	19@4000	1:1.47	2100	14.5	1.31	.416	64.7	OH	1230	1325	69.7	83
Riley 2½L Saloon	4	6.8	149.0	100@4500	1:1.50	3500	31.6	3.17	.672	31.4	OH	3136	3450	34.5	118
Rolls Royce Limo.	6	6.4	260.0	126@4000	1:1.28	2993	81.7	1.54	.484	37.7	F	4704	14830	118.0	96
Rover 75 Saloon	6	7.25	128.0	75@4200	1:1.61	2900	31.1	2.41	.586	40.7	F	3052	3100	41.3	110
Singer 9 Roadster	4	7.0	66.0	36@5000	1:1.59	3130	17.5	2.05	.545	48.2	OHC	1735	1610	44.7	86
Standard Vanguard	4	6.7	127.4	68@4000	1:1.09	2410	35.2	1.93	.534	41.0	OH	2790	1845	27.1	106
Sunbeam Talbot 90	4	6.45	138.3	70@4000	1:1.36	2890	31.9	2.19	.506	41.1	OH	2875	2775	39.7	100
Triumph Mayflower	4	6.7	76.1	38@4200	1:1.59	2760	19.6	1.79	.499	50.0	S	1900	1415	37.2	94
FRANCE															
Citroen 2CV	2		22.9	9@3500	1:1.00	1423	9.2	0.95	.393	122.3	OH	1100	681	75.7	89
Citroen 11CV	4		116.7	56@3800	1:1.28	2495	29.2	1.92	.480	41.1	OH	2300	1315	23.5	100
Delage D6 Berline	6		182.4	82@4000	1:1.08	2373	50.4	1.63	.450	26.9	OH	2200	4050	49.4	89
Delahaye 175	6		273.5	160@——	1:1.14		63.6	2.52	.584	14.5	OH	2310	3840	24.0	—
Delahaye 135	6		217.0	95@3800	1:1.28	2666	50.8	1.87	.437	21.7	OH	2060	2360	24.8	91
Ford Vedette	8		131.5	65@4000	1:1.19	2067	67.3		.494	39.9	S	2590	1960	30.1	98
Gregoire	4		134.2	70@4000	1:1.00	2253	35.4	1.98	.522	29.9	OH	2090			103
Hotchkiss Anjou 13	4		141.0	70@4000	1:1.16	2610	35.4	1.98	.496	40.8	OH	2860	2860	40.8	98
Panhard Dyna 120	2	7.5	45.5	32@5000	1:0.94	2463	15.2	2.11	.704	42.4	OH	1356	1370	42.8	111
Peugeot 203	4		78.6	42@4000	1:0.97	1917	26.9	1.56	.534	43.4	OH	1815	1320	31.4	106
Renault 4 CV	4	6.7	45.6	19@4000	1:1.47	2100	14.4	1.32	.417	64.8	OH	1230	836	44.0	83
Salmson S4E Berline	4		140.0	68@4000	1:1.25	2720	27.0	2.52	.486	25.2	2OHC	1715	3170	46.6	96
Simca 8 Berline	4	6.3	74.5	40@4000	1:1.04	1967	24.7	1.62	.537	49.5	OH	1980	1400	35.0	106
Simca 8 Sports	4	7.8	74.5	50@4000	1:1.04	1967	24.7	2.02	.672	42.0	OH	2100	2670	50.5	133
Talbot Lago Baby	4	7.0	164.5	120@——	1:1.06		41.8	2.87	.728		OH		2060	17.2	—
Talbot Lago Record	6	7.9	273.4	190@4200	1:1.18	3031	62.8	3.02	.694	20.3	OH	3850	3080	16.2	131

MAKE & MODEL	Cyls.	Comp. Ratio	Disp. Cu. Ins.	BHP @ RPM	B/S Ratio	Piston Travel FPM	Piston Area Sq. Ins.	BHP/Sq.In. Piston Area	BHP/ Cu. In.	LBS/ BHP	Valve Arrgt.	Dry Weight	Price@ Factory	$ Per BHP	BMEP @ Max. BHP
GERMANY															
Champion	1	5.5	15.3	9.5@3800	1:1.73	1044	4.92	1.93	.620	51.0	Two	485	572	60.2	65
DWK Meisterclasse	2	6.3	42.0	23@——	1:1.00		14.0	1.64	.548	76.6	Two	1760	1395	60.6	—
Ford Taunus De Luxe	4	6.6	72.0	34@4250	1:1.45	2564	25.0	1.36	.472	55.9	S	1900	1550	45.6	88
Gutbrod	2	6.2	35.4	19@4000	1:1.07	1967	12 0	1.58	.536	73.0	Two	1390	1158	61.0	53
Hansa Borgward	4	6.3	91.5	48@4000	1:1.28	2500	25.3	1.90	.524	49.3	OH	2365	1765	36.7	104
Mercedes 170V	4	6.5	103.5	38@3400	1:1.36	2240	26.3	1.45	.370	64.7	S	2460	2160	56.8	86
Mercedes 170D	4	19.0	107.7	38@3600	1:1.33	2361	26.3	1.45	.355	70.7	OH	2690	2480	65.2	78
Mercedes 170S	4	6.5	107.7	52@4000	1:1.33	2630	27.3	1.90	.486	54.7	S	2845	2720	54.6	96
Porsche 356	4		66.4	40@4000	1:0.87	1680	26.2	1.54	.602	33.0	OH	1320	2350	58.7	119
Volkswagen	4	5.8	69.0	25@3300	1:0.85	1386	26.9	0 93	.362	61.4	OH	1533	1380	55.2	87
ITALY															
Alfa Romeo 1900	4	7.5	115.0	79@4800	1:1.07	2780	33.2	2.38	.687	30.4	2OHC	2400	3660	46.4	113
Alfa Romeo 2500 Sports	6	7.5	149.2	105@4800	1:1.39	3148	37.6	2.80	.704	21.0	2OHC	2200	7420	70.7	116
Ferrari Mille Miglia	12	8.0	121.7	130@7000	1:0.98	2707	51.8	2.51	1.07	11.5	OHC	1495	9080	69.8	121
Ferrari America	12	8.0	250.0	220@6000	1:0.85	2680	93.4	2.35	.880	9.0	OHC	1980			86
Ferrari Inter	12	7.5	148.5	130@6000	1:0.90	2315	61.3	2.12	.876	16.0	OHC	2090			117
Fiat 500cc	4	6.4	34.7	16.5@4400	1:1.29	1936	13.0	1.27	.475	81.3	OH	1342	1075	65.2	93
Fiat 1100	4	7.5	66.4	51@5200	1:1.10	2557	22.6	2.26	.767	31.1	OH	2068	1610	31.6	116
Fiat 1400	4	6.7	85.0	44@4400	1:0.80	1900	32.7	1.35	.518	58.1	OH	2552	2100	47.7	116
Lancia Aurelia	6	6.85	107.0	55@4000	1:1.08	1990	35.8	1.54	.514	45.0	OH	2480	3050	55.3	102
JAPAN															
Toyo-pet	4	6.5	61.0	27@4000	1:1.15	1917	19.6	1.38	.443	114.3	S	3086			88
Datsun	4	6.5	52.5	21@3600	1:1.27	1800	17.6	1.19	.400	83.8	S	1760			88
RUSSIA															
Moskvitch	4	5.8	65.3	24@3400	1:1.11	1672	22.2	1.08	.368	77.5	S	1859	1160	50.4	86
SPAIN															
Eucort	3	5.9	63.0	31@3900	1:1.0	1924	21.0	1.48	.492		Two				50
SWEDEN															
Saab	2	6.6	46.6	25@3800	1:0.95	1900	15.5	1.61	.536	67.2	Two	1680	1275	51.0	56
Volvo	4	6.4	86.3	40@3800	1:1.06	2000	26.9	1.49	.463	53.8	OH	2150	1265	31.6	97
UNITED STATES															
Buick 40 Special	8	6.6	263.3	120@3600	1:1.30	2550	91.4	1.31	.456	30.0	OH	3605	1941	16.2	100
Buick 70 deluxe Riviera	8	7.2	360.2	152@3600	1:1.25	2588	74.2	2.05	.422	27.9	OH	4240	2764	18.2	104
Cadillac 61	8	7.5	331.0	160@3800	1:0.95	2296	91.4	1.75	.483	24.3	OH	3890	2866	17.9	101
Chevrolet	6	6.6	216.5	92@3400	1:1.07	2125	57.73	1.59	.425	34.0	OH	3130	1450	15.8	100
Chrysler Windsor	6	7.0	250.6	116@3600	1:1.31	2700	55.62	2.09	.463	31.6	S	3665	2134	18.4	102
Chrysler New Yorker	8	7.5	331.0	180@4000	1:0.95	2417	91.4	1.97	.543	23.7	OH	4260	2758	15.3	108
Crosley Sedan	4	8.0	44.0	26.5@5400	1:0.90	2025	19.63	1.35	.602	51.4	OHC	1363	882	33.3	88
De Soto	6	7.0	250.6	116@3600	1:1.31	2700	55.7	2.08	.453	30.8	S	3570	1986	17.1	102
Dodge	6	7.0	230.2	103@3600	1:1.43	2775	49.77	2.07	.444	33.2	S	3415	1848	17.9	98
Ford	6	6.8	225.9	95@3600	1:1.33	2640	50.4	1.89	.421	32.4	S	3075	1472	15.5	93
Ford	8	6.8	239.4	100@3600	1:1.76	2250	63.9	1.57	.418	31.2	S	3115	1545	15.5	92
Frazer	6	7.3	226.2	115@3650	1:1.40	2661	51.8	2.22	.508	30.6	S	3535	2359	20.5	110
Henry J	4	7.0	134.2	68@4000	1:1.40	2917	30.68	2.22	.507	33.9	S	2300	1299	19.1	100
Henry J De Luxe	6	7.0	161.0	80@3800	1:1.12	2217	46.01	1.74	.497	29.1	S	2325	1429	17.9	104
Hudson Hornet	6	7.2	308.0	145@3800	1:1.18	2850	68.6	2.11	.470	26.2	S	3800	2502	17.3	98
Hudson Commodore	8	6.7	254.0	128@4200	1:1.50	3150	56.55	2.26	.504	28.7	S	3675	2502	19.5	95
Kaiser Special	6	7.3	226.2	115@3650	1:1.32	2661	51.8	2.22	.509	27.4	S	3150	2109	18.3	110
Lincoln L74	8	7.0	336.7	154@3600	1:1.25	2625	76.97	2.00	.457	27.1	S	4180	2576	16.7	101
Mercury M74	8	6.8	255.4	110@3600	1:1.25	2400	63.9	1.72	.431	32.3	S	3550	2032	18.5	97
Nash Rambler	6	7.25	172.6	82@3800	1:1.20	2375	46.01	1.78	.475	29.6	S	2430	1837	22.4	99
Nash Statesman	6	7.0	184.0	85@3800	1:1.28	2533	46.01	1.85	.462	34.9	S	2965	1815	21.4	96
Nash Ambassador	6	7.3	234.8	115@3400	1:1.31	2479	53.68	2.14	.490	29.1	OH	3350	2162	18.8	114
Oldsmobile 88	8	7.25	303.0	135@3600	1:0.92	2063	88.32	1.53	.445	26.2	OH	3542	1978	14.7	98
Packard 200	8	7.0	288.0	135@3600	1:1.07	2250	76.97	1.76	.469	27.1	S	3665	2355	17.4	103
Packard 300	8	7.8	327.0	150@3600	1:1.21	2550	76.97	1.95	.459	26.2	S	3930	2895	19.3	101
Plymouth	6	7.0	217.8	97@3600	1:1.35	2625	49.77	1.95	.445	32.1	S	3110	1551	16.0	97
Pontiac	8	6.5	268.4	116@3600	1:1.11	2250	71.5	1.62	.432	29.0	S	3363	1813	15.6	93
Studebaker	6	7.0	169.6	85@4000	1:1.33	2667	42.41	2.00	.501	31.6	S	2690	1572	18.5	99
Studebaker	8	7.0	232.6	120@4000	1:0.96	2167	71.57	1.68	.516	25.6	OH	3070	1838	15.3	102
Willys—Sta. Wag.	4	7.4	134.2	72@4000	1:1.40	2917	30.68	2.35	.537	39.1	F	2818	1678	23.3	106
Willys—Sta. Wag.	6	6.9	161.0	75@4000	1:1.12	2333	46.01	1.63	.466	37.7	S	2831	1757	23.4	92

AVERAGES

COUNTRY	Cyls.	Comp. Ratio	Disp. Cu. Ins.	BHP @ RPM	B/S Ratio	Piston Travel FPM	Piston Area Sq. Ins.	BHP/Sq.In. Piston Area	BHP/ Cu. In.	LBS/ BHP	Valve Arrgt.	Dry Weight	Price@ Factory	$ Per BHP	BMEP @ Max. BHP
Australia	6.0	6.5	132.5	60@3800	1:1.04	1980	42.4	1.42	.453	37.0	100%OH	2220	1827	30.5	94
Czechoslovakia	4.0	6.2	92.7	42@4000	1:1.06	2114	29.9	1.40	.453	53.8	100%OH	2260			91
England	4.9	7.0	136.3	80@4356	1:1.33	2818	35.3	2.26	.585	32.9	81%OH	2625	3153*	39.5*	107
France	4.5		131.6	73@4021	1:1.12	2289	36.2	2.02	.555	30.4	94%OH	2123	2250	36.8	109
Germany	3.3	6.2†	71.1	33@3816	1:1.23	2147	21.4	1.54	.464	56.8	40%OH	1875	1753	53.1	86
Italy	7.1	7.3	119.7	92@5177	1:1.05	2459	42.4	2.17	.770	22.5	100%OH	2067	3999	58.2	118
Japan	4.0	6.5	56.7	24@3800	1:1.21	1859	18.6	1.29	.423	101.0	100%S	2423			88
Russia	4.0	5.8	65.3	24@3400	1:1.11	1672	22.2	1.08	.368	77.5	100%S	1859	1160	50.4	86
Spain	3.0	5.9	63.0	31@3900	1:1.00	1924	21.0	1.48	.492		100%two				50
Sweden	3.0	6.5	66.5	31.7@3800	1:1.01	1950	21.2	1.50	.477	60.4	50%OH	1915	1270	40.1	77
U.S.A.	6.4	7.1	236.7	111@3774	1:1.24	2508	59.3	1.87	.469	29.5	32%OH	3278	1990	17.9	98

* Not including Rolls-Royce & Daimler

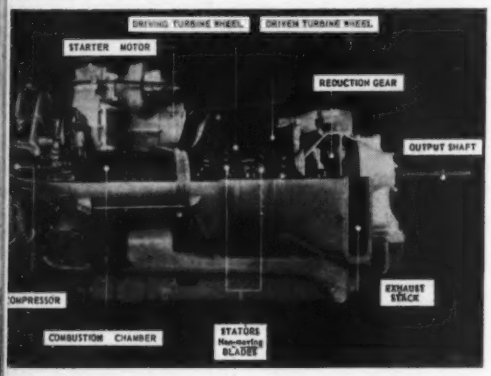
† Not including Mercedes-Benz Diesel

NOTE: Every effort has been made to insure the accuracy of the data listed here. However, even manufacturers' figures are occasionally contradictory and MOTOR TREND does not assume responsibility for possible inaccuracies.

THRUSTING AHEAD.. A YEAR OF GAS TURBINE PROGRESS

by Griffith Borgeson

WE STUCK out our necks a long way in the May, 1950 issue of MOTOR TREND, predicting that the gas turbine was nearing its coming of age in the automotive field. It was a daring position to take—our claims, after all, were direct contradictions of statements which had been made repeatedly by many of Detroit's most awesome oracles. What has happened in the past year, plus, to lend weight to our optimism?



BOEING 502 typifies the simplicity of gas turbine construction. There is a total of just 200 parts in the Boeing unit, as opposed to 800 to 1200 parts in comparable size piston engines

As that May issue of MOTOR TREND went to press, word flashed from England announcing that the world's first gas turbine-propelled automobile—the now-famous Rover—had been tested successfully by the Royal Automobile Club.

America's own Boeing Airplane Company followed this revelation with the news that it had been operating the world's first GT-powered truck on Washington highways for better than a month. The U. S. Navy Bureau of Ships stood behind the development program.

Every manufacturer of small gas turbines in the world immediately was assailed by race car builders, sports car builders, truck manufacturers and operators—far-seeing men who wanted to be the first to apply the new prime mover in their fields. No gas turbines, as far as is known publicly, have yet been released by their makers for such uses. But this latent trend is a powerful force and will burst into full reality the instant that—the Emergency and other conditions permitting—GT engines become available.

WORLD'S FIRST turbocar—the Rover—used a power unit diagramatically the same as Boeing's 502, did zero to 60 mph in 14 secs.

In October, 1950, no less a figure than legendary Dr. Neubauer, Director of the Racing Department of Mercedes-Benz, stated that the next international racing formula must provide for the rating of GT racing machines. "Racing cars," he claimed, "are best suited to determining the value of this motive force. Constructors of competition machines must decide soon if it will not be better to start designing their own non-reciprocating engines, rather than to pay dearly, later, for the license to use foreign engines."

In December, 1950, the R.A.C. of England announced that, after its decision to observe trials of GT-powered cars (sparked by Rover), the club had gone to work on the problem of rating such engines for purposes of future comparison and evaluation. A formula was developed and submitted to the Federation Internationale Automobile—the international governing body—and was accepted.

In January of this year the R.A.C. decided to revive one of the most famous awards in automotive history—the Dewar Trophy for outstanding automotive achievement—and presented it to the Rover Company for obvious reasons.

In late January, Boeing announced that it had been successfully operating a 24-foot Navy personnel boat, GT-powered, on Lake Washington for the previous seven months.

One American speed equipment house is now assembling complete GT engines for sale to the general public. These are based upon turbo-supercharger components, will probably be of low efficiency but of great experimental value.

Officials of the Indianapolis Memorial Day Race, when questioned about the operation of GT-powered cars in this year's 500, agreed to let such cars operate on the speedway and compete in the time trials, but not in the main race. Reason: the problem of rating.

The international motoring press is devoting growing amounts of space to this burning question of the competition future: the rating of GT and up-and-down engines on a basis that will be fair to each, so that the New and the Old can compete *against each other* in the same events.

From the motorist's point of view the most promising and exciting aspects of these developments concern the work that has been done by Rover and Boeing.

The Rover turbocar was tested by the R.A.C. on March 8, 1950, the 200 bhp gas turbine having been installed in a P.4 Rover roadster about three weeks earlier. The R.A.C. report states: "The general design of the car, apart from the power unit and transmission, was on conventional lines, and its external appearance normal.

"The fuel used was kerosene.

"The method of starting is by a normal car type electric starter, with pushbutton on the instrument panel.

"Control is simple from standstill to maximum speed, and is solely by means of the accelerator pedal, the only other driving control being the brake pedal.

"In a test of acceleration from standstill, the car smoothly attained 60 mph in 14 seconds."

The Rover GT car was a complete success in the eyes of its highly qualified observers. Its unsilenced exhaust was not judged excessively noisy and, although no attempt was made at reaching top speed, the car breezed up to 85 mph with remarkable ease. And that is the last we've heard of the world's first turbocar. In October, the Rover Company stated that, with appropriate financing, turbocars could be produced for the open market within the next five years!

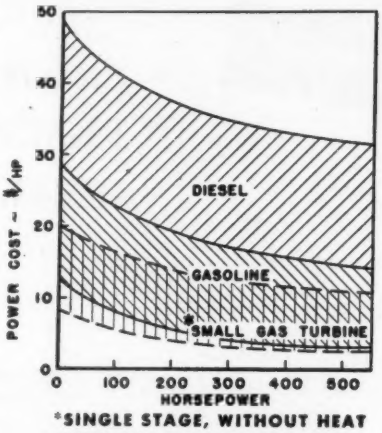
The famous Boeing turbotruck is a mobile test bed for the 175 bhp "502" engine. The truck and trailer combination is being operated at 68,000 lbs. total weight and engineers who have operated it report that there is no engine vibration and that starting acceleration is noticeably good. Thanks to the engine design which embodies separate gas producing and power sections (like the Rover), torque characteristics are realized which allow

the loaded truck to operate with half the stages of reduction gearing required by the same type of vehicle powered with up-and-down engines. During the first stages of the Boeing turbotruck experiment, with truck weight as high as 28,000 lbs., only one gear was used for highway operation. Torque conversion was accomplished by the engine alone! Under load conditions of 68,000 lbs., additional reduction gearing was found necessary and experience indicates that a five-speed transmission would be adequate for mountain highway operation at gross loads up to 70,000 lbs.!

Remember during this discussion that this same engine, the Boeing 502, could be adapted easily to almost any present-day automobile. You could actually have —if you could obtain one—the powerplant of a 70,000-lb. truck under the hood of your family car. Performance, then, should be interesting, since torque makes for acceleration. The 180 bhp Chrysler develops 312 ft.-lbs. maximum torque —at 2000 rpm. Compare that with the Boeing 502's almost 700 ft.-lbs. at a standstill. A 502-equipped passenger car would enjoy staggeringly brilliant acceleration along with simple, super-flexible operation.

For most automotive applications a transmission in addition to the engine will not be required—only a reversing gear. The engine, after all, is its own infinitely variable transmission. An auto designed around the 502 could take advantage of the light weight and small size for either front or rear engine mounting depending on the design features required. For front engine installation, ducting would be required for the exhaust gases while on a rear installation inlet air ducts would be required for combustion and cooling air requirements. There is, of course, no radiator and the turbine's exhaust is cooler than that of your present car.

To continue with lessons learned from the turbotruck, let's tackle the all-important question, "Can the 502 compete actively as a powerplant?" The answer—from a standpoint of operational economy



THIS GRAPH, prepared by Solar Aircraft Co., one of the three most active U.S. firms in the small gas turbine field, shows estimated cost in dollars per hp of small GT units compared with competing engines. Although gasoline and small turbine engines overlap here, latest figures indicate that gas turbine costs will fall very close to bottom curve, offer really cheap power

—hinges upon: 1. Initial cost; 2. Fuel and oil costs; and, 3. Maintenance costs.

Cost estimates on the 502 in production quantities as low as 1000 a year indicate that the engine can compete cost-wise with the powerplants now used in the trucking industry. Naturally, if the production figure is upped to, say, 50,000 per year, cost per engine will be vastly lower—a major factor in the gas turbine's automotive future.

As for fuel and oil costs, the present 502 burns about 2½ times the fuel required by a gasoline engine of equal power output, but it can burn the cheapest of low-grade fuels. The 502's oil consumption rate is about a quart to every thousand miles. In its present form, the 502 weighs about 220 lbs. It requires no liquid cooling system and gearbox weight is slashed to a tiny fraction.

The economy obtainable by utilizing the weight differential of the 502 does not offset the difference in fuel costs with the present engine. But with continuation of development on the 502, fuel consumption rates *are anticipated in the near future* by Boeing engineers which will bring direct operating costs to the level of reciprocating engines, with weight and space savings thrown in as a bonus.

Now for the question of maintenance costs: The 502, with 220 parts as compared to the 800-1200 parts in reciprocating engines of equal power, has a minimum number of moving parts and close tolerance running fits. All moving parts are carried by low friction bearings and the motion is uniform and continuous. There are no sliding parts and no reciprocating motions. There is no torsional vibration caused by explosive combustion, and power is obtained by steady and continuous pressure against the turbine blades. The gas coupling between the two turbine wheels provides slippage under sudden changes in load or power setting which limits wear on the gears of the reduction unit. The simplicity and smooth operation of the engine would lead one to expect good service life, and operation of the engine under service test conditions has indicated this to be true. So, with a service life equal to that of

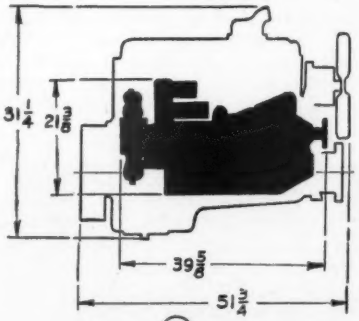
IF A PICTURE was ever worth a thousand words, this is it. Diesel engine, right, weighs about 2650 lbs., not counting trans., rad. core

reciprocating engines, the maintenance cost for the 502, because of the simplicity and continuous rotation of the parts, is estimated to be at least 20 per cent less than for a comparable up-and-down power unit.

The conclusion to be drawn from these observations and definitely established facts is that, when the present emergency passes and engines are readily available, the GT-powered truck will be able to compete with its forerunners on an equal footing.

Moreover, it's inevitable that, as soon as suitable engines are available (they're being made today, of course, but not for public sale) they will find their way, quickly, into racing cars. In these divergent fields the small gas turbine engine should be perfected for automotive application. Fuel economy, reliability, and power output will be steadily refined, and the GT production car will just naturally come into being.

SCALE PROFILE of Boeing 502 superimposed upon in-line gasoline engine of similar output stresses compactness of the turbine (right). The gasoline engine shown here weighs 1500 lbs., has a volume of 34.5 cu. ft., compared with super-compact Boeing's 220 lbs. and 10.8 cu. ft.



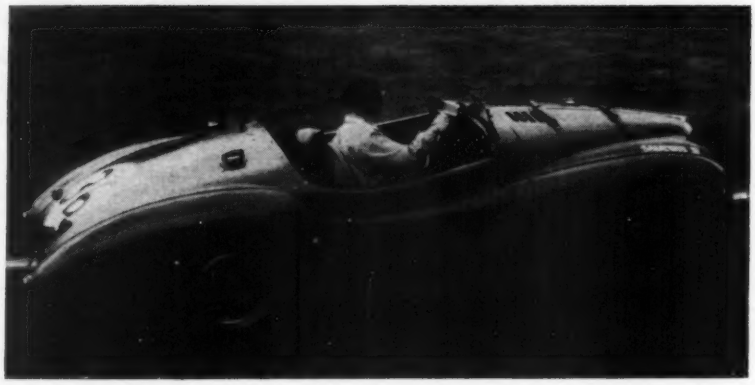
RACING CAR, 195-? Installation of a gas turbine (below) in a typical competition machine would offer no difficulties, many advantages. Many engineers predict new prime mover will prove itself first on speedway, then highway

DRAWINGS BY DON FELL

tendance continentale

- **NEW JAGUAR COUPE**
- **BUGATTIS RETURN**
- **FERRARI TROUNCES MERCEDES**

by A. Devereux



JOWETT JUPITERS placed first and second in their category in this year's Monte Carlo Rally —a nice achievement. These businesslike English sports cars are now being introduced into U.S.

ENGLAND: The much-for-the-money Jaguar will be available soon not only in the Mark VII model (sedan with XK-120 engine), but in striking hardtop-coupe form as well—and with the same dual oh cam engine. The new coupe is, in fact, essentially an XK-120 two-seater, with a metal top suggestive of the lines of the Mark VII sedan. It's this very aerodynamically proper top which may give the "enclosed XK" even better top speed than its open predecessor. The coupe's interior is finished in fine English style, has polished wood instrument panel, adjustable steering column, form-fitting, beautifully upholstered leather seats. . . . After years of research into the inherent fault of castor-base racing oils—its tendency to form gummy deposits in the engine—C. C. Wakefield and Co., Ltd., claim now to have discovered the solution to the problem, and put it into practice in their newest product, Castrol "R." All the qualities of the original oil are still there, including the typical and dearly loved exhaust odor. . . . For model car enthusiasts: Accurate scale models of the Morris Minor, 8¼ ins. long and electric-powered, are now available; manufacturer's address on request.

ITALY: The dazzling custom-built Alfa Romeo illustrated here is equally fine belowdecks. The chassis is tubular, features independent suspension on all wheels, much like the layout on the all-conquering Alfa 158. The 2½-litre (153 cu. ins.), six-cyl. dual oh cam Alfa gives the car a top speed of over 110 mph. The body itself was designed by Count Johnny Lurani, the famous sports car champion and small-displacement record holder. These hand-made, one at a time, cars sell for a surprisingly low $5750.

FRANCE: Bugattis again! That's the most exciting news to come out of France in many months. It seems definite now that two new types will be in series production by the end of the year—capitalizing, perhaps, on the phenomenal growth of the Bugatti reputation since the war's end. First new Bug to leave the plant will probably be the Type 100, a Type 57-based machine with 3.3 litre (201 cu. ins.), dual oh cam, supercharged engine developing around 165 bhp and using a five-speed transmission. Improved silence and suspension are promised. The other new type will be a smaller car with 1.6 to 1.7-litre dual oh cam blown engine. . . . Manufacture of the Mathis "666" which aroused considerable interest in this country has been indefinitely postponed and the factory has suspended all car production. . . . The revolutionary, lightmetal Hotchkiss-Gregoire was seen in revised form at the latest Geneva Show. Delivery of these cars to the public is scheduled for late this fall.

AUSTRALIA: Competition for the GM-backed Holden car will come from Ford in the near future, as the American company converts its 25-year-old assembly plant in Victoria to the production of a V-8 designed primarily for the Aussie market. The Gregoire-based Hartnett is not yet in production.

GERMANY: One of the greatest creative minds in automotive history is no longer with us; Ferdinand Porsche has died, at the age of 75. He was best known to this generation for his revolutionary Volkswagen, the recent Porsche automobile, and for his famous rear-engined, 16-cyl. racing machines which were operated by Auto Union between '34 and '37. Porsche was the son of an Austrian sheet metal worker and first attracted attention in 1900 with an original gasoline-electric car. In '06 he became director of the Austro-Daimler Co., in '10 designed and drove an oh camshaft Austro-Daimler to victory in the Prince Henry Trials. He then created military vehicles for Skoda before the first war and developed air-

RIVA-BUILT custom Alfa Romeo is powered by advanced 153 cu. in. engine, has top speed of over 110 mph, sells for a relatively modest $5750

HOTCHKISS-GREGOIRE in refined form for 1951 was a center of attraction at the Geneva Auto Show. Almost the entire car is made of aluminum and light alloy. Engine size has been upped to 2.2 litres (135 cu. ins.), does 95 mph

craft engines for Austro-Daimler during that conflict. He went to work for Mercedes in '23, designed the supercharged four which won the '24 Targa Florio, later had a share in the design of the S-series Mercedes. The as-yet-untried Cisitalia Formula I racing car of '49 was his last competition machine. He is survived by a son, Ferry Porsche, also an automotive engineer. . . . Also died this February, August Horch, Germany's oldest living automobile pioneer, at the age of 83. Horch built his first car in 1900, was a high-ranking member of the Carl Benz organization for many years, was founder of the Horch and Audi Companies which were later absorbed by the Auto Union family. Horch cars have always been known for quality of workmanship and design.

BOOK OF THE MONTH is "Grand Prix Racing Facts and Figures" by George Monkhouse, whose competent writing and photography have been referred to frequently in these pages. In the words of Lord Brabazon of Tara, Monkhouse ". . . is, perhaps, the highest authority on motor racing existing today. There is no phase about which he does not know. . . . This book is a novel (yet true), a thriller, a history, and the 'Bible' of Motor Racing." Monkhouse starts at the beginning, 1894, takes you through every important event until 1950, then considers the future. The history of the Indianapolis 500 comes in for full and gratifying treatment. There are biographies of the great drivers, of great personalities. The book contains, in addition to its 186 pages of text and photos, 49 pages of tables which present, in statistical form, a sweeping summary of Grand Prix racing history. The book is basic to any library of speed.

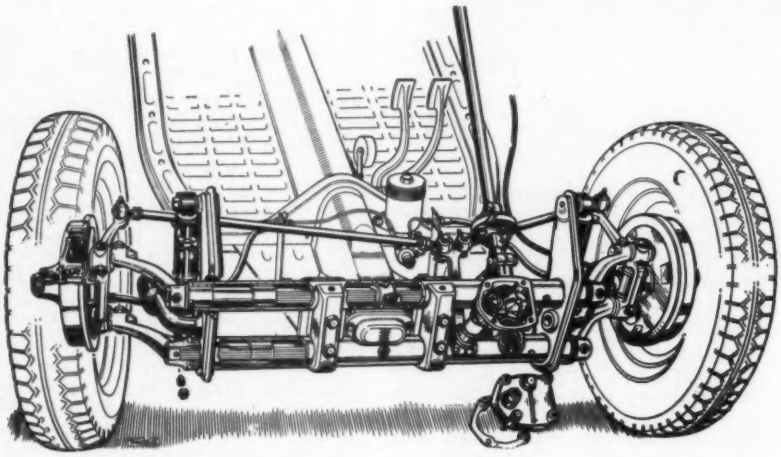
SPORT: In Brussels in mid-February the C.S.I.—competition committee of the F.I.A.—met to outline the coming G. P. formula which will go into effect in January, 1954. Countries represented were America, Belgium, France, Germany, Great Britain, Holland, Italy, Luxembourg, Portugal, Sweden, and Switzerland. There was much stumping for the renewal of existing Formula I for 1½ litres (91 cu. ins.) blown and 4½ litre (274½ cu. ins.) "straight." The final vote was in favor of a new formula specifying 750 cc (45.8 cu. ins.) blown and 2½ litre (152½ cu. ins.) unblown. Also recommended was a minimum distance for all Grand Prix races of 200 km (about 125 miles). Then, a special committee was set up to develop a method of rating gas turbine-powered cars so that they can compete in such races. This is not the last word. will not become law until the general F.I.A. meeting in October. But trends are clear: people think that cars are going too fast again, want to make them smaller. And turbocars seem to be on the way. . . . The 9000-mile Algiers to Cape Town Rally, over fantastically bad roads and under incredibly difficult conditions, wound up late in February. According to just-received provisional results, three cars tied for first place in the general category, all military-type vehicles. They were a Delahaye, a British Land Rover, an American Willys Jeep, all cars being driven by French entrants. The Jeep won the Over 122 cu. ins. Class, with Ford and Renault following. Under 122 ins. Class was won outright by the Land Rover, with Peugeot and Lancia second and third. Up to 67 cu. ins. Class was carried by 63-year-old Mme. d'Ieteran in a Volkswagen, with a Dyna Panhard and a Renault behind. It's notable that these extremely small cars negotiated the tremendous trek with scarcely any mechanical trouble. The Rover encountered no mechanical difficulties whatsoever. Final times for the winners have not yet been announced. . . . Mercedes cars in Argentina have been a big disappointment to all but the natives, who have twice seen Home Boy Froilan Gonzales trounce the three prewar juggernauts from Germany. First defeat was in the President Peron G. P. on the Costanera 2.17-mile circuit near Buenos Aires. The 2-litre (122 cu. ins.), supercharged, short chassis Ferrari which gave Gonzales his success is owned by Fangio who, at the last minute, was

NOW AN XK-120 coupe! Another highlight of the Geneva Show was this just-announced hardtop coupe by Jaguar. Maximum speed figures will probably top those of famous two-seater

picked to replace Dr. Farina on the Mercedes team. This move was apparently taken to appease the local audience and is therefore quite understandable. Nevertheless, Farina was irate over the 11th-hour decision and has filed complaint with the F.I.A. Balance of the Mercedes team is composed of Karl Kling and Hermann Lang, with Caracciola nowhere in evidence, in any capacity. The win by Gonzales was repeated a week later in the Eva Peron G. P. (Feb. 25) on the same circuit. Although the three-litre (183 cu. ins.) Mercedes are admittedly faster and more powerful than the Ferrari, such a very short course with hardly any straights-aways placed all the advantage on the side of the lighter two-litre car. . . . Announcement by the BRM Trust: "The larger members of the Trust, which include six of the leading motor manufacturers and component suppliers of Great Britain, have confirmed their faith in the BRM by continuing their financial support. At a recent meeting it was agreed that their subscriptions would provide the minimum income required to carry the development and racing programme through the 1951 season. The work at Bourne is being vigorously pursued and no racing programme will be announced at present." . . . The most classic of all rallies is the Monte Carlo and, late in January, the 21st annual installment was run off as 337 starters converged, from points all over Europe, upon Monaco. Weather was abundant and included everything from spring sunshine to mountain blizzards on the almost 2000-mile course, the weather's overall goodness indicated by the fact that the rather high number of 283 cars finished. Top team was the French one of Trevouz and Crovetto who piloted a very streamlined 4½-litre (274½ cu. ins.) Delahaye all the way from Lisbon. Trevouz is an old hand at this, having cut the winning caper before in '34, '39 and '49, and his first place this year applied to both the General and Over 1500 cc categories. The 1500 cc class itself was a one-two win for a pair of Jowett Jupiters from Glasgow, while a Mk V Jag placed third in its class and in Genl. Category, all of which delighted the English. France's success extended to the 1100 cc and 750 cc classes, won respectively by Simca and Renault. . . . The Ferrari organization announces that during the 1950 season their cars competed in 74 events, placed first in 46, second in 33, third in 18. They now have three models for over-the-counter sale. All are 12-cyl. jobs, range in hp from 130 to 220. There's an American agent. . . . Talk around Milan is to the effect that the Alfa 158 will pull 380 hp in 1951 form. That's 4.13 bhp per cu. in.! This is being achieved by aid of a shorter stroke and improved blower. . . . Further gossip has it that Nuvolari's allergy to fuel fumes was due to bad tonsils. Tazio has just had these removed, promises now to have a go at a few hill climbs. If all goes well, he'll raise his sights. . . . Piero Taruffi has just broken another world's record with a new machine. Taruffi pioneered twin-tank design with his motorcycle engine-powered Tarf, set new class records. Now he has applied knowledge so gained to a more ambitious project: a two-tank, four-wheeler with 280 bhp Maserati engine in one torpedo, pilot and controls in the other. Top speed and a new class record set by this machine is 186.25 mph. The class was for two litres, the Maserati's displacement 1740 cc (106 cu. ins.), the old record was held by Goldie-Gardner.

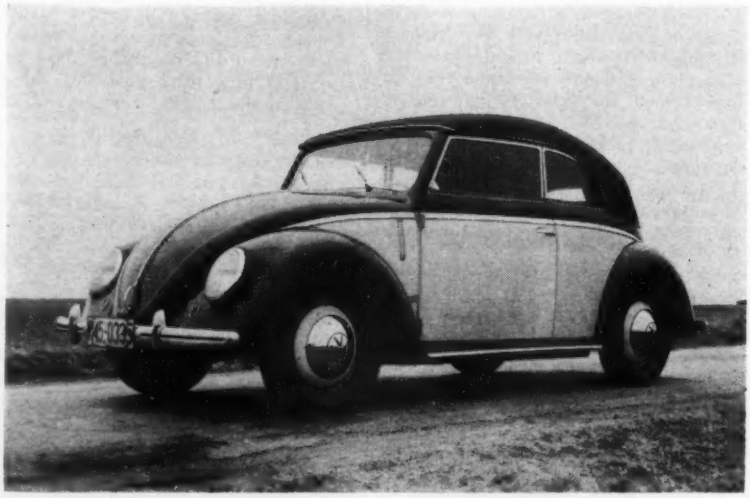
DAS AUTO

DOCTOR ENGINEER Ferdinand Porsche (above) was born in Austria Sept. 3, 1875, died in Germany Jan. 30, 1951. He was one of the few true geniuses of world automotive history



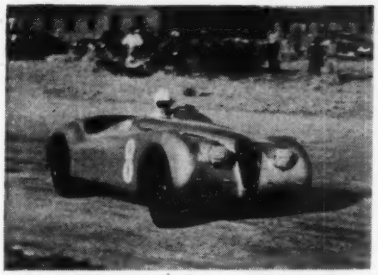
MONUMENTS TO Porsche are many (left). This is one: the ultra-simple trailing link and laminated torsion bar suspension of the Volkswagen. Layout first proved its worth in Auto Union cars

NEWEST MODEL in the Volkswagen line is this convertible (below) with typically German padded top. It's costliest VW, sells for $1655



Desert Drama

(*Continued from page fifteen*)



SWISS NATIONAL Champion W. P. Daetwyler drove Hastings Harcourt's XK-120 brilliantly, was stopped by seized engine late in race

13 cars running at the end, out of 31 starters.

Sterling Edwards (S-E Sports Car) clung to second behind the Ferrari for 40 miles, finally dropping to fourth and retiring (at 96 miles) after losing all his coolant. Michael Graham (Cad-Allard), while running third, dropped out at the 100-mile mark. This spot was then taken over by Jim Seely, driving a steady race in the Cannon Sports. The Cannon later retired with a rod bearing out.

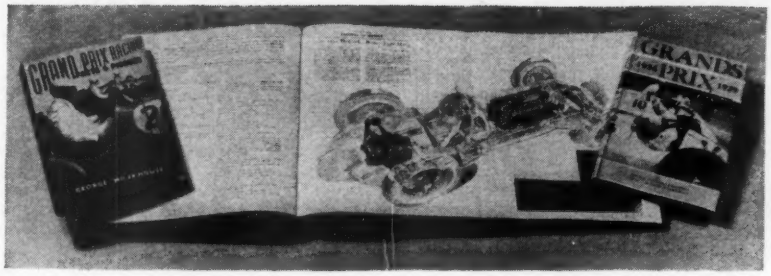
Other interesting entries were: Bucknam's vintage Riley, the amazing Altemus Auto Banker, Hill's Mille Miglia Alfa-Romeo and Panzer's GMC-powered Allard. An international touch was lent by the presence of W. P. Daetwyler, the sports car champion of Switzerland, at the wheel of an XK-120.

While mechanical retirements were common, the only accident occurred when Henry Manney's blown Crosley skidded off the course and rolled over, fortunately with no damage to Henry and only minor dents to his car.

A 10-lap preliminary race for stock sports cars up to 1500 ccs was won by Tom Farrell (MG-TC), with R. Menefee (MG-TC) second, and E. Forbes Robinson (MG-TD) third.

The California Sports Car Club and the Sports Car Racing Association, Inc. are to be congratulated for their successful conduct of these races. Western enthusiasts are looking forward to the next event, the second annual Pebble Beach Road Race.

TOM FARRELL'S MG-TD storms wide of groove on way to 1500 cc Race win for stock cars



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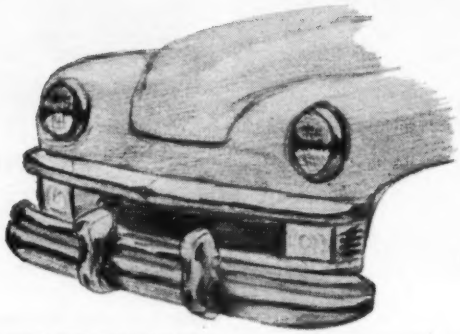
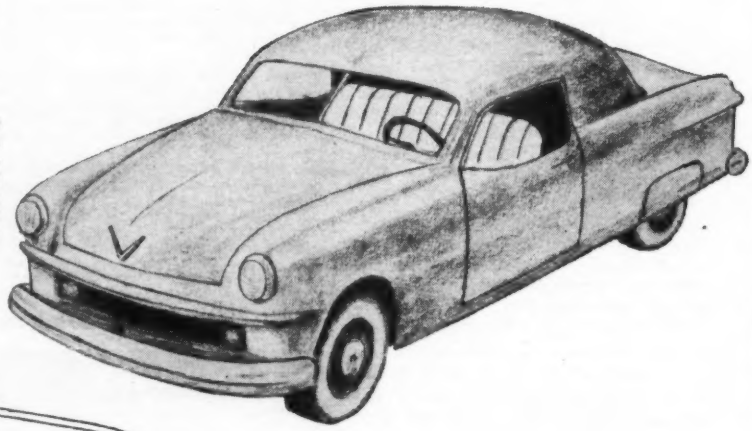
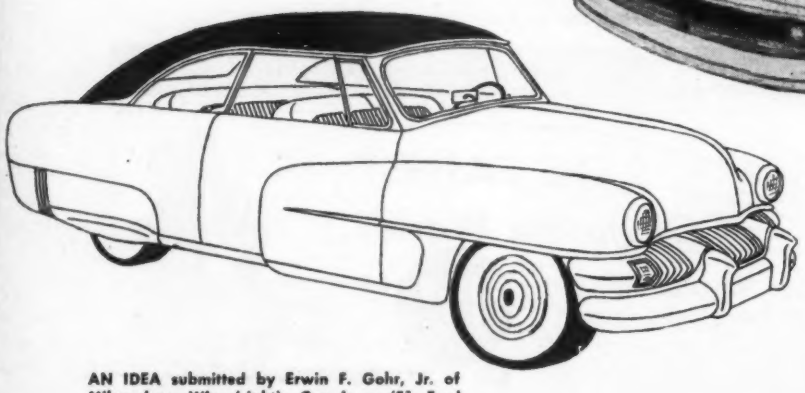


A SIMPLE grille arrangement, writes Del Coates, Pasadena, California for a '46 Dodge, including the original parking lights. It requires, he says, filling in the upper part of original grille cavity

NOTE: In the April issue of MOTOR TREND, *we featured drawings of how a '50 Oldsmobile would look if it were "Mercurized." The idea was for YOU to submit ideas on how you think a certain car could be customized. These are some of the responses. We'd like to have more. This is YOUR page.*—Editor

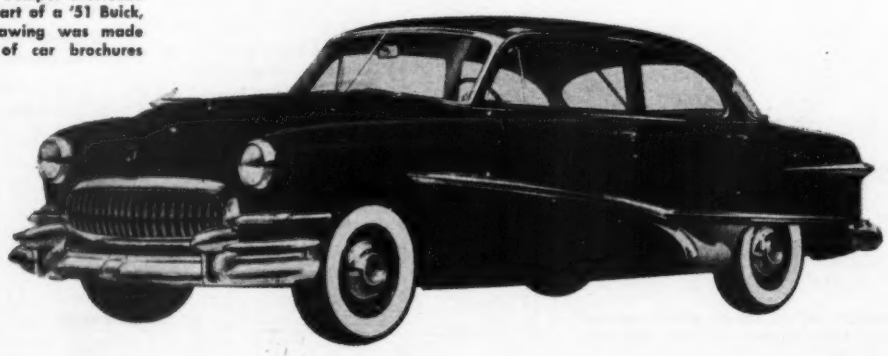
STARTING with a '50 Ford Club Coupe, Richard Albert of Santa Fe, New Mexico says he'd chop the top three inches, fill in the back side windows, chop the door, dechrome the sides, hood and rear deck. Grille would consist of a plain piece of chrome; opening above to be filled with metal sheet; bottom opening for air





TO RESTYLE his '51 Merc. (left), Leslie Harlow, Spokane, Washington emphasizes the front fender line by bringing the rear of it down vertically through the door, eliminating part of the horizontal crease. Wrap around rear bumper has been shortened. Hood has been shaved

AN IDEA submitted by Erwin F. Gohr, Jr. of Milwaukee, Wis. (right). Car is a '51 Ford with a '51 Nash grille, with bumper shortened for wheel clearance. Top is part of a '51 Buick, as is trimming on side. Drawing was made up from pictures cut out of car brochures



Mobilgas Economy Run

(*Continued from page seventeen*)

cars were all perfectly tuned. The AAA rules provide for it and all manufacturers were bound to take advantage of this fact. They realize how important it is to maintain a car in tip-top condition.

Question: Can they over-inflate the tires? How about some of the other tricks to get better mileage?

Answer: Everything has to be according to manufacturer's recommendations. Carburetor jets can be at the first lean range; timing can be set for best performance, but cannot be changed during the run; axle ratio must conform to "standard" or "optional" for that car; compression ratio must be the same as 50 per cent of production models; tire pressures were pre-determined and tires were filled with bottled standard air.

Question: If a car has overdrive, it naturally gets better mileage. Is it handicapped for this?

Answer: No handicaps are imposed. As long as the equipment is stock, the car is allowed to use it.

Question: Weren't all of the drivers professional?

Answer: Not in the strict sense of the word, but all drivers were well acquainted with the entire course. The ideal situation, as far as you and I are concerned, would be for the drivers to be handed a map the day of the Run, with no prior indication as to the route. It would be almost impossible, however, to prepare for such a large-scale event secretly.

Question: You say the drivers were well acquainted with the course. Were they allowed to go over it?

Answer: As much as they wanted to, but only 4500 miles with the car to be used in the Run. For additional runs, drivers used companion cars, cars that were identical in make and model to the car used.

Question: What were some of the things the drivers watched for?

Answer: I'll let Pierce Venable, driver of the Nash Rambler, which averaged 31.053 mpg to win first place in the Special Lightweight six-cyl. class, speak for me. "I feel that the most important thing is that gasoline mileage is in direct proportion to throttle movement. If you've got the throttle up and your foot off of it, you're not going to use as much gas, naturally. So if you remove your foot every time you can and still maintain speed, you get better gasoline mileage."

Question: How did a car like the Chrysler get such good mileage?

Answer: Again, I'll let Mel Lewis, driver of the Chrysler Imperial, winner of its class with 21.178 mpg, pinch-hit for me. "We attribute it all to our engine. We, of course, drove pretty easy on the throttle. That's the main thing in getting mileage—not to accelerate too fast or to attain too high a speed. The main thing we found in our driving was to watch the road ahead and plan our driving with extreme caution, according to the speed and power that we needed."

Question: Do you think the average motorist can get that kind of mileage from his Chrysler Imperial?

Mel Lewis: I think that the average motorist can get very good mileage. The main thing is to be easy on the throttle and plan your driving.

Joe Doakes: How did the Lincoln get such good mileage? I know a lot of guys that own Lincolns and they don't get 25 mpg.

Answer: Of course, it had overdrive, standard shift, a 3.31:1 rear axle and a sharp driver, Les Viland. He was the winner of the Sweepstakes award, taking first place with the Lincoln in ton-mpg. Les, will you tell Joe how you drove the car and what you watched for on the Run? "We drove it as smoothly as we could, just cruised along at the speed we thought we had to go, and if we saw a headwind coming, we wouldn't try to fight the wind. We would slow down a bit and then go faster later on. We had gone over the course and checked the best way to get the most mileage. With our particular car it paid to keep the speed up to about 40 mph up hills, as well as on levels. That doesn't hold true of all cars; with some cars it paid to slow down quite a bit and go smoother on levels when it rolled freely."

Joe Doakes: Mr. Viland, what would you recommend for getting good fuel economy?

Les Viland: The main thing, I would say, is just be gentle with your car. Don't start it suddenly and stop suddenly, and don't have digout races with people. You never get good mileage while you're doing that.

Question: What about the drivers sandpapering their throttle foot to get better mileage?

Answer: Here's Bill Stroppe, winner of his class with the Mercury and last year's Sweepstakes Award winner. He was accused of that, you know. "That was strictly a publicity gag on somebody's part. I tried driving barefoot but found that I got too much contact with the throttle. It caused my foot to vibrate."

Question: How did you drive for economy, Mr. Stroppe?

Bill Stroppe: We found that we got considerable mileage in cold weather, especially in the morning when the car is first on the road. We have found that a large percentage of low mileage is due to running too fast when the engine's cold, due to running on automatic choke.

Question: In going through traffic, how do you drive?

Bill Stroppe: Traffic is one of our big problems on the Run. We try not to interfere with any oncoming traffic that might be at a signal; we try to make all of the signals at a time where we don't have to speed up, and stop and start. If people would obey speed limits and operate

(*Continued on page forty-nine*)

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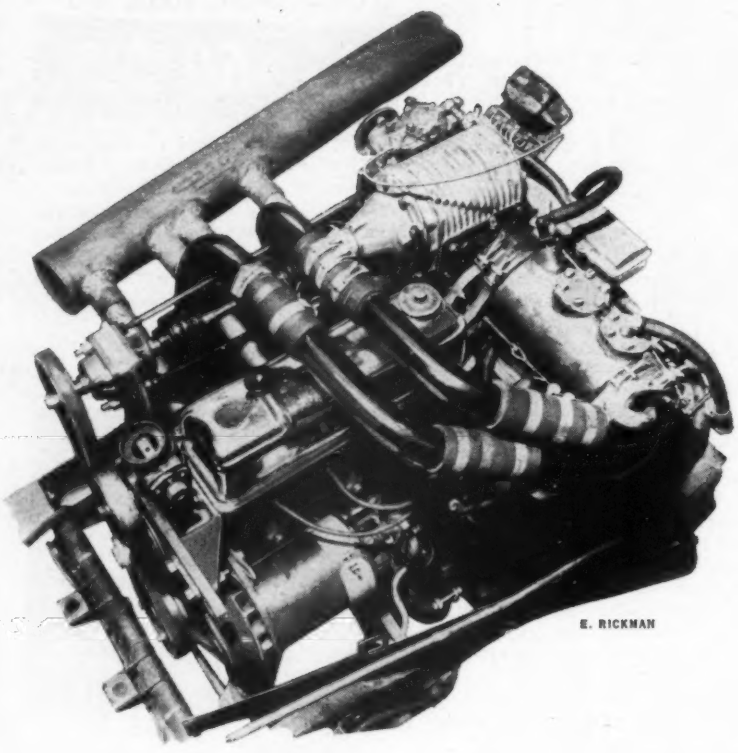
RECORD MG OUTPUT?



E. RICKMAN

TERRIFIC MG output of 148 bhp is achieved by installation of IT blower, plus many other modifications. See text for full details of this John Edgar - McAfee Engineering engine conversion

ONE - HUNDRED - FORTY - EIGHT HORSEPOWER from an MG TC! That's what the Clayton dynamometer shows that John Edgar, west of the Mississippi IT supercharger distributor, is extracting from his own supercharged job. For the benefit of other MG owners, here's the Edgar treatment.

The standard Italmeccanica blower for MGs is mounted at the rear of the engine, adjacent to the firewall. It carries a single, side-draft Solex carburetor and a Thompson Products Vitameter by means of which water and a detergent are blended with the fuel mixture. Detergent serves the purpose of causing water to flow, rather than to form globules. Power is taken from the front of the crankshaft via single, steel cable belt to the blower driveshaft which incorporates two universal joints which compensate for possible misalignment. Pulley ratios are set to give a maximum of just under 12,000 blower rpm at the engine's 6500 rpm, making for 12 lbs. of boost. The two-lobe, straight-cut IT rotors are able to stand these high rpm due to their very light weight: they're machined from magnesium alloy.

Edgar found that, operating at this pressure, there was a 300° F temperature rise in the fuel-air mixture as it left the blower. To correct this impossible situation, two ex-aircraft heat exchangers were installed, an "intercooler" between blower and engine and an "outercooler" mounted in the airstream, on the side of the car. Due to the nomenclature, this sounds very confusing in spite of its simple operation. The heat exchangers consist of many stainless steel tubes passing through a sealed housing. An electric fuel pump circulates water from a dry ice packed storage tank on the cockpit floor to the intercooler, the water drawing heat from the fuel-air mixture as the latter passes through the intercooler's tubes. The water flows on to the outercooler, where ambient air passing through its tubes cools the water, and then the water returns to the storage tank. The effect of these machinations is to hold the combustible mixture below a temperature of 150° F, a very reasonable figure. Pop-off valves are provided in the intake manifolds for protection of the entire induction system.

An identical heat exchanger is mounted at the side of the oil sump, through which the lubricating oil circulates, maintaining a temperature about 100° F below the "uncooled" figure. With an engine such as the MG, which relies heavily upon the circulating oil for head cooling, this measure pays off.

A special camshaft was designed for this engine and machined from a solid billet. We're told that overlap is such that the well-exploited blower also scavenges exhaust gases. Many other engine modifications were made. In order to arrive at the lower-than-stock compression ratio of 6:1, both head and block were lapped, and a thick, annealed, solid copper gasket used. The stock head studs were replaced with high tensile steel substitutes to get away from stretching under the pressures involved and new big end bolts were made of the same material. Oversize valves were made, also nested double valve springs which exert 220 lbs. pressure. Stock MG pistons are retained.

The engine cooling system operates at seven lbs. pressure and uses methylene glycol in place of water, functions well at almost 300° F. All fuel and oil lines are of neoprene, to get away from possible vibration problems. The entire steering mechanism has been revised, to give more positive control. And, to dodge the problem of snapping axles, these have been duplicated in special steel. A 4.875 rear axle ratio is used, rather than the original 5.125 and the TC hubs have been laced to 16-in. wheels which run Firestone racing tires. With a power-to-weight ratio of 1:10 this car goes like nothing other than an Offy midget. Does it give you ideas?

While on the subject of blowers, Mr. Edgar informs us that Italmeccanica now has a manufacturing plant in this country and that five-litre superchargers suitable for Cad, Olds, and Chrysler will be in production around the first of June.

CALENDAR OF EVENTS

May 26 SCCA Indianapolis Rally — Monte Carlo Type (Tentative)
26-27 Pebble Beach Road Race, Pebble Beach, Calif.
June 8-9 Bridgehampton Road Race, Bridgehampton, Long Island
16-23 SCCA Studebaker Proving Grounds Meet
17 So. Cal. SCCA El Segundo Standing ¼ Time Trials
July 4 SCCA Mt. Equinox Hill Climb, Manchester, Vt.
14-15 Michigan SCCA Press On Regardless Tour 19-20 Elkhart Lake Road Race, Elkhart Lake, Wis. (Tentative)
August 12 So. Cal. SCCA Gymkhana
September 15 Watkins Glen G. P., Watkins Glen, N. Y.

Thanks to the new Chrysler's very rational combustion chamber design, an output of better than 300 bhp is expected from these engines when equipped with the IT unit.

★ ★ ★

AT THE PRESENT TIME, the sports car movement in the United States appears to be in the midst of a major crisis, namely, to affiliate or not to do so with the AAA, American member of the F.I.A., the international sanctioning body. We say "appears to be" because the situation is not as critical as it may seem. Some clubs favor this affiliation, some do not. The AAA takes the realistic position, "We are willing to serve for the good of the sport, but will consider doing so on a permanent basis only if *all* clubs vote in favor of our services—any other position would only injure the sport." The clubs themselves have the responsibility of evaluating the worth to them of AAA affiliation, and this problem is now being studied across the land. The ultimate decision will, naturally, be the one which will most benefit sports car racing as a whole. In the meantime, James Lamb of the Competition Board of the AAA has gone to Europe to attend Le Mans, will extend his stay to make a detailed study of European sports car racing procedures.

★ ★ ★

ENTHUSIASTS IN THE OREGON area should know of the Sports Car Club of Oregon, which can be contacted through Mr. H. W. Lent, Secretary, 414 Water St., Oregon City. . . . Further to activity in Colorado: we have just had the Rocky Mountain Sports Car Club called to our attention. Headquarters are in Grand Junction, at World Motors, where any interested parties are invited to call and where owners of foreign cars can go for parts and service. . . . Dabney Collins wishes to hear from those interested in a Pikes Peak Hill Climb for sports cars. His address, 961 Santa Fe Drive, Denver, Colo. . . . And AAA Jim Lamb has expressed interest in seeing such an event organized.

★ ★ ★

SPORTS CAR CLUB OF AMERICA has put up a trophy for the Le Mans 24-hour *Grand Prix d'Endurance* for the best performance by a non-French participant. . . . More news is out on Briggs Cunningham's '51 Le Mans machines: the cars are large, but with rather Ferrari-inspired lines, are apparently a good deal more beautiful than last year's "Le Monstre." Frame is of chrome moly tubing and coil spring suspension is used fore and aft. Rear end is unusual: Transmission is built into the differential which is of the quick-change Halibrand type and de Dion axle layout is used. The first car has been equipped with a Cad engine and the remaining two will run V-8 Chryslers. The cars will carry blue and white colors for the Le Mans race. . . . The next Sebring, Florida "Miniature Le Mans" will not be run on Dec. 31, 1951, as suggested earlier, but will be pushed up into early '52. It's universally realized now that the short circuit and handicap used at the first Sebring meet made

SAM COLLIER Memorial Trophy, displayed by veteran racing enthusiast Alec Ulmann, was top award of the Sebring "Miniature Le Mans," honors the memory of a great U.S. sportsman

things a bit tough for the larger cars, but Regional Executive George Huntoon assures us that all will be adjusted next year. Biggest single improvement in future Sebring plans is adoption of a five-mile course, which will certainly give bigger, faster cars a better shake. And it looks as though the next race will be for eight hours. . . . Elkhart Lake Road Race of SCCA's Chicago Region will be held on August 18 and 19, will be a national event in that entries will be accepted from other areas. Handicapping will be used again this year, cars in every category will compete simultaneously. . . . And, speaking of categories, the Club's Contest Board has announced new regulations for 1951, aimed at making possible closer and more equitable competition among the cars we have in this country. These regs apply to both the Sports Car and Unrestricted Car categories:

CLASS	TOTAL CYLINDER DISPLACEMENT
1	Over 5500 cc
2	Over 4000 to 5500 cc
3	Over 3000 to 4000 cc
4	Over 1950 to 3000 cc
5	Over 1500 to 1950 cc
6	Over 1000 to 1500 cc
7	Over 750 to 1000 cc
8	Over 500 to 750 cc
9	Over 350 to 500 cc
10	up to 350 cc

All supercharged cars will move up one class. . . . A movement growing in popularity with the Southern Calif. Region is "team racing." It heightens camaraderie, increases the fun, makes it possible to take home another trophy. It works like this: Three cars from any one class make up a team, each car carrying the team colors. Scores are computed on the basis of the team's total time against class winner's time for the same event (assuming event has been run before), multiplied by three. You run against, in other words, the established time for your own class. Southern Calif. Region is also mak-

(*Continued on page fifty*)

BROOKS STEVENS

HOBBYIST'S CORNER: This is a part of the clean collection of Brooks Stevens, well-known automotive and industrial designer. Visible here are a Marmon, XK-120, two Cords, a French Talbot

BATTERY CARE SAVES MONEY . . .
GOOD PLUGS INCREASE PERFORMANCE . . .

by H. Wieand Bowman

IN 1796 ALLESANDRO VOLTA, Italian physicist, invented the first storage battery. A refined version of Volta's battery in the passenger car can roughly be termed the heart of the engine. Rare is the motorist who at sometime or other hasn't been plagued by a dead or dying battery. Slow poisoning or starving are the usual diagnoses for the sickness or death. Yet for a dollar bill and 10 minutes a week attention, battery ailments can be avoided.

The price of a new battery will range from $10 to $30 or more dependent upon the type and original quality, but aside from this relatively small financial outlay a weak or dead battery invariably seems to occur when you have an important engagement. So if you add the cost of a tow, the inconvenience or actual out-of-pocket outlay caused by your inability to start your car, the proper servicing and care of the battery can be very important.

A quick survey of a half dozen service stations indicated that five of the six used ordinary faucet water to top off batteries—and top off is what actually occurred in four of six stations when a battery inspection and servicing was requested.

This cursory check on service stations' methods of servicing batteries is not meant to represent a poll or even to give an accurate estimate of the proportionate number of service stations that check batteries thoroughly and properly when asked. Rather it indicates that sloppy methods may be used and unless you know what to ask for and habitually oversee the job, your battery's life span can be unnecessarily curtailed.

First, to be sure your battery is in proper condition, check it yourself. In summer weather plan to make a twice-weekly check of your battery (five minutes will do the job) and a once-a-week inspection during the colder months. No mechanical ability is required. The only things needed are a hydrometer at 50 cents and up, a jug of distilled water for a two-bit piece, a jar of vaseline and a box of baking soda.

With indelible ink mark off ½-in. from the filler end of the hydrometer. The hydrometer will be a depth measurement device, filler and gauge all in one. Insert the hydrometer until it touches top of plate. Add water only when fluid drops below the ½-in. mark on the end of your hydrometer and keep the level at this point. When the electrolyte of a battery drops below the plate level the exposed area of the plates hardens and the battery's capacity is reduced. Never add anything but distilled water or rain water caught in a wooden receptacle. Normal tap water contains metal particles and these metal particles cause an internal discharging action through short circuiting between the battery's plates.

Filling above the ½-in. point will dilute the electrolyte (original solution of sulphuric acid and water) far below its normal concentration. Never add sulphuric acid to a battery as a rapid breakdown of the plates will probably result.

A reading (at liquid level on hydrometer scale) of 1.285-1.300 indicates a charged battery. A reading of 1.200-1.225 is a half charge and indicates a weak battery, while 1.150 or less is the reading you get when the battery is discharged.

If the electrolyte appears frothy or foamy it indicates the presence of grease or oil. If this is noted the entire electrolyte should be removed, the battery flushed with distilled water and a new solution added, since oil or grease will cause rapid decomposition. A solution of 39.2 per cent sulphuric acid by weight and 60.8 per cent water gives an electrolyte of 1.300 specific gravity, which is the proper mixture for temperate climates. As chemical reaction increases with warmth, batteries to be used in tropical areas require a lesser percentage of sulphuric acid in the electrolyte to give a specific gravity reading of 1.210 to 1.230 to give a long life to battery plates. The reverse is also true. In severely cold climates a stronger electrolyte of 1.400 specific gravity or slightly higher is used.

H. WIEAND BOWMAN

POLYETHYLENE battery self-filler caps. Caps include a tube with small outlet so distilled water drawn into plastic bottles will automatically refill and maintain level of battery water-acid. Tube of bottles extends to plate level

Corrosion around the battery terminals, a green-white powdery accumulation, weakens the battery output as it provides resistance that cuts down current flow. The corrosion is caused by electrolyte seepage due to overfilled cells or inadequately sealed terminal posts.

Corrosion should not be permitted to accumulate. The corroded area should be brushed or scraped and then washed with baking soda and water or ammonia and water. When the bubbling ceases, the contact posts should be flushed with fresh water and vaseline applied liberally to the terminal posts and leads to retard recurrence. To offset terminal post leakage, when installing a new battery be careful not to crush or break the post seal by adjusting the battery brackets too tightly.

Not only is a discharged battery an inconvenience, but in winter months, while a properly charged battery will withstand temperatures to 95° F. below zero without freezing, a discharged battery will freeze at or near the 32° F. point. The reason is that the sulphuric acid in a discharged battery withdraws into the porous plates leaving the main body of the electrolyte solution pure water. A battery must be kept charged to prevent freezing and the accompanying distortion and breakage of case, plates and insulators.

Nearly as harmful to a battery as neglect is continued overcharging. Too high a rate of charge overheats the battery, causing rapid deterioration.

If your car is stored for a few months, remember that an unused battery will deteriorate through sulphation (coating of plates that prevents proper absorption and expulsion of the electrolyte solution in chemical reaction). It is inexpensive to have your battery placed on a trickle charger.

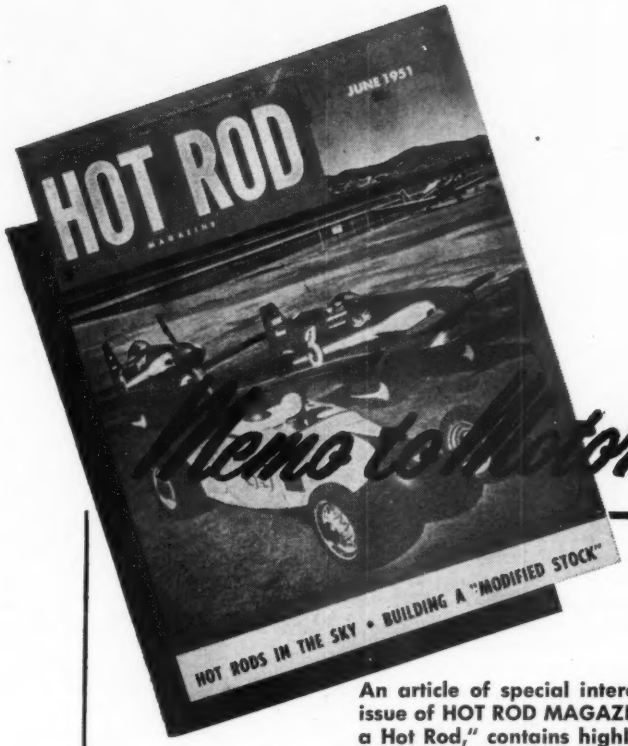
Finally, never inspect your battery with the light of a match or any open flame as the gas given off by the chemical action of the plates and the electrolyte may explode.

Spark Plug Problems

The spark plugs in your engine supply the firing power to cause fuel combustion in the engine's combustion chambers. Improper plugs can cut down gas mileage, cause uneven running, hard starting or, in extreme cases, can actually cause engine failure.

At normal running speed each plug fires two or three hundred times a minute across the air gap between the two electrodes. A high voltage is required to cause the spark to jump even the smallest gap. Air itself is a strong resistor to the passage of electricity. When electrical current can be forced through the air at this gap a spark, actually a series of infinitesimally small sparks, results. The bent electrode, the one that connects to the side of the plug, is grounded to the block. The

(*Continued on page forty-seven*)



Memo to Motor Trend Readers

An article of special interest to you will appear in the June issue of HOT ROD MAGAZINE. This article, titled "Road Testing a Hot Rod," contains highly informative technical data on an Oldsmobile "88" coupled with Hydra-matic drive mounted in a 1928 Model "A" Ford chassis—with a 1950 Olds rear end, complete with coil spring suspension.

The June issue of HOT ROD, featuring this story, goes on sale at your newsstand May 18th

Articles of this type and other features jam packed with automotive information appear monthly in HRM. For those interested in receiving HOT ROD every month, before it's on sale at your newsstand, the cost is but $3.00 for 12 big issues, $5.00 for 24.

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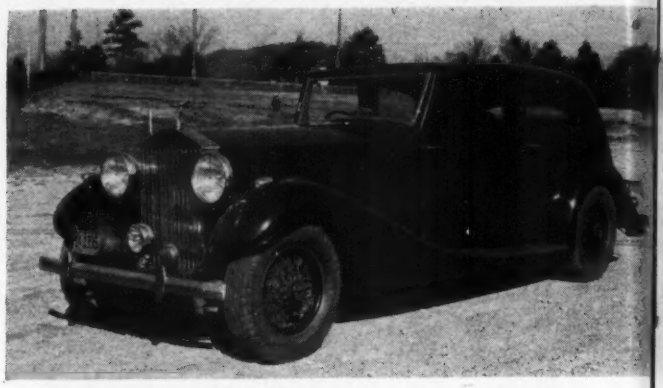
by E. A. Jaderquist



CAR OF the Month is Dr. C. S. Shoup's Rolls-Royce Phantom III Sedan. Price was $18,500

I JOURNEYED home as a passenger in the rear seat with Colonel Harker. An almost inaudible whine, fainter than a mosquito, rose to my ears from the back axle. Only harsh critics would have heard it.

"'Presumably that's another detail for attention,' I remarked as I lit my pipe.

"'Yes,' replied the colonel. 'It will not occur in the finished products.'"

That faint whine was emanating from the rear axle of a Rolls-Royce Phantom III pilot model. The harsh critic with the sensitive hearing was the Earl of Cottenham, gentleman motorist and journalist, and these deathless lines were lifted bodily from *The Well-Behaved Great Grandson of a Ghost*, published under the imprint of Rolls-Royce Limited.

The Colonel's prediction proved correct, as Dr. C. S. Shoup, owner of the Car of the Month, will testify. His P-III sedan, illustrated on this page, has no unseemly mosquito-whine in the rear axle.

Dr. Shoup established what must be a record for long engagements before he finally carried his prize home. The original owner, a Nashville, Tennessee inventor and industrialist, ordered the chassis in April, 1937 and specified that an exact duplicate be made by J. S. Inskip in New York of a Barker body. Dr. Shoup was in town when the car was delivered in August, 1937. The executive paid a total of $18,500 plus an extra $185 for Dunlop chrome wheel discs not shown in the photo.

The admiring doctor stayed out of the picture for the five years during which the owner drove his own car. Then, in a sudden desire to use the glass partition between the front and rear seats, the owner hired a chauffeur, and the watchful eyes of Dr. Shoup soon discovered that the hired driver knew as much about the driver's seat of the Rolls as he did about the cockpit of a jet fighter. For the next four years, Dr. Shoup carefully tutored that chauffeur and the men who succeeded him in the mysteries of Rolls-Royce management.

Dr. Shoup began collecting information about Rolls-Royce Ltd. in 1935 but he did not buy his first one until 1941. That year he found a handsome 20/25 hp (RAC rating, not bhp, always hushed by R-R) sedan with a Henry Binder body. In 1943, he sold this one and bought a 1924 Silver Ghost phaeton which he drove until the P-III became available in 1947.

With the possible exception of the new P-IV, the P-III is the liveliest Rolls-Royce yet manufactured. The 12-cyl. engine is capable of moving a heavy limousine body effortlessly, soundlessly at speeds varying from 5 to 100 mph in fourth gear. Third gear is good for 79 mph. In normal operation, the P-III is started in second, first being saved for unusual situations. Those who have driven a P-III report that its acceleration must be experienced to be believed, not because of its neck-snapping abruptness but for the fast, dead-smooth peaking of the engine.

The interior of Dr. Shoup's car is upholstered in leather. A sunshine top, originally fitted, was covered over by the original owner. In the rear there are small, let-down tables with leather pockets for papers. Between the tables there is a small compartment just large enough to conceal a pint bottle.

An American driver, accustomed to the clutchless driving of 1951, would be sorely troubled by the simple techniques of starting and operating the Phantom-III. The handbook lists the following steps:

1. Switch on ignition.
2. Set thumb lever on instrument board to "Start."
3. Retard ignition about one-third from top of quadrant.
4. Set hand throttle lever at the bottom of its quadrant.
5. Depress starter button.

At this point a red light flashes on. This light stays on until the engine comes to a respectable running speed. When the car is slowed down to an idle, the red light reappears. One purpose of this light is to remind a forgetful owner that the engine is still running. Naturally, the Rolls-Royce engine is too quiet to hear at idling speeds.

The gear lever is located between the driver's seat and the door (P-III's have right-hand drive) and the driver drops his hand naturally to his right side to shift.

An unusual feature of the P-III is its dual ignition circuit. Each cylinder has two plugs, one located on the exhaust side, one near the intake valve. A special switching mechanism makes it possible to use either bank of plugs separately for testing purposes, though the engine is designed to run on all 24.

SPECIFICATIONS
From Handbook of the 40/50 hp Rolls-Royce car (Phantom III).

Engine: 12 cyl.; 3¼-in. bore by 4½-in. stroke; disp. 448 cu. ins.; 50.7 R.A.C. hp; angle between cylinders, 60 degrees; overhead valves operated by pushrods; hydraulic valve lifters; aluminum heads; Rolls-Royce dual battery ignition controlled by a Rolls-Royce governing device. Duplex down-draft carburetor. Thermostatic radiator shutter control.
Clutch: Single dry plate.
Gears: Four-Speed and reverse.
Front suspension: Independent helical springs in combination with controllable hydraulic shock-absorbers.
Wheelbase: 142 ins.
Weight: Chassis only, complete with tires, battery, fuel, oil, water—approximately 4,050 lbs.

Dr. Shoup has run through the gears from 0 to 60 mph in 16 seconds without pushing the car dangerously. He reports that the Rolls will run away from any stock American automobile on twisting and turning roads due to the excellence of its independent front wheel suspension. Mileage in town runs between 9 and 10 mpg, but on longer hauls a conservative estimate is 11-12 mpg.

Rolls-Royce model changes have often confused the collector. Briefly, there have always been two major models existing at the same time—one the large, 40/50 hp car and the other a smaller-engined, equally perfect creation varying from 20 to 30 horsepower. The larger cars are the most familiar to American enthusiasts, few of the smaller ones finding their way to this side of the Atlantic. The first 40/50 was the Silver Ghost, first made in 1907 and continuing for 19 years. In 1926, the Phantom I was introduced, followed in 1929 by the Phantom II. Finally, in 1936 the Phantom III appeared and was the standard-bearer until 1939. Since the war, there has been no 40/50 hp model until the Phantom IV was assembled for Princess Elizabeth last year. No other Phantom IV's have appeared.

The smaller Rolls began in 1922 with a 20 hp model. In 1929 this small six became a 20/25 hp car and shortly before the second World War the horsepower

was nudged upward to 25/30. The last prewar 25/30 was known as the Wraith and is the direct forefather of the postwar Rolls. All Rolls-Royce passenger cars since 1907 have borne names that suggest silence—the proudest boast of the firm.

The outstanding quality of the Rolls-Royce has always been its perfection. Nothing is really perfect, but the engineers and mechanics employed by Rolls-Royce Limited have always tried to approach the goal. That is why a Rolls-Royce costs so much money. The Rolls is not a work of art so much as it is the ultimate in craftsmanship. "Whatever is rightly done, however humble, is noble" is the homely motto that has served the Derby works since the organization of the company by Sir Henry Royce, then untitled, and the Hon. Charles Rolls. Royce was the engineer—the incredible mechanic—and Rolls was a gentleman racing driver and pilot. The company prospered on the unique principle of avoiding the mass market. This very idea was the stated rule of the company.

Many stories are circulated about the Rolls-Royce. It is true that more than one Silver Ghost with better than 500,000 miles of service is still in daily use. It is also true that Rolls-Royce bodies are now tested in a gas chamber to make sure that they are completely air-tight. There really is a machine that tests the tool clips to the breaking point to make sure that no Rolls owner will be subjected to the annoyance of a rattling spanner. And one Rolls Phantom III went 12,500 miles in 34 days, crossing the Sahara twice and plowing through jungle roads in vicious heat, without losing a drop of water from the radiator.

Lastly, the famous mascot, "Silver Lady." This trademark was created in about 1916 by sculptor Charles Sykes for his own Silver Ghost. Almost immediately, it was adopted as the exclusive property of Rolls-Royce Limited. Only a Rolls-Royce owner may purchase one at the factory.

Following is the first installment of suggested prices for classic car repairs. It is impossible to present any kind of flat-rate guarantee before examining the interior of a classic car engine but these prices may be used as a guide to the conscience of your mechanic. Fred Bodley, Los Angeles Rolls-Royce—Bentley specialist, has performed the work indicated for the price given. Labor is at the rate of $4.00 per hour. Prices are for the Phantom I Rolls-Royce, English or American. Phantom II prices are slightly higher.

Tuning (includes valve adjustment, magneto and ignition timing, carburetor adjustment)	$15.00 (Parts extra)
Clean and Rebuild carburetor	$8.00 (Parts extra)
Valves (grinding, facing, hand-lapping and incl. tuning)	$ 80.00
Ring and valve job	175.00
Reboring @ $3.00 per cylinder	18.00
New Pistons @ $15.00, finished	90.00
Cleaning chassis springs (should be done every 3 or 4 years)	50.00
Reline Brakes (includes cost of linings)	125.00
Rebuild clutch	160.00
Lubrication (for parts missed by one-shot)	1.25

In cases where a price range was given to me, I have used the higher figure. These are close to the maximum it is necessary to pay for the work indicated. Since this is an experimental feature of "Classic Comments," I would particularly like to hear from Rolls owners and mechanics concerning the prices listed above.

A final reminder to all Rolls-Royce owners. Peter Shavney, along with Dr. Shoup and others, are organizing a Rolls-Royce club. If you are interested, please communicate with Peter Shavney, 74 Shelburne Rd., Springfield, Pennsylvania. There will eventually be a regular publication devoted to the Rolls-Royce and a service to aid members in locating parts and competent mechanics.

A few letters have expressed interest in a classic-car club. Do you think this would be a good idea? Without cutting into the activities of the Rolls-Royce club or any other similar organizations, a classic club might furnish owners with a good social outlet. Let me hear from you.

The very formal town car, or brougham, pictured here is a McFarland similar to one owned by Wallace Reid of movie fame. This car is a 1924 Twin-valve Six, originally priced around $7,000, and is owned by Elliott Wiener, a Los Angeles collector. The body is an excellent example of the timeless quality of the brougham. Four-door sedans of this same period appear hopelessly outmoded, yet this austere, formal creation might almost be mistaken for a recent Rolls.

This last week, in Los Angeles, two advertisements in the paper caught my eye. One offered an Auburn supercharged speedster for $1,500 and the other carried an Illinois address and asked $1,800 for a '37 Cord. Now, really! That Auburn sold for $2245 at the factory when new. After 16 years it has certainly depreciated more than $1,000. The Cord listed at about the same price in 1937. Prices like these do genuine harm to the classic-car hobby. Any enthusiast who considers paying such an exorbitant sum deserves to lose his money.

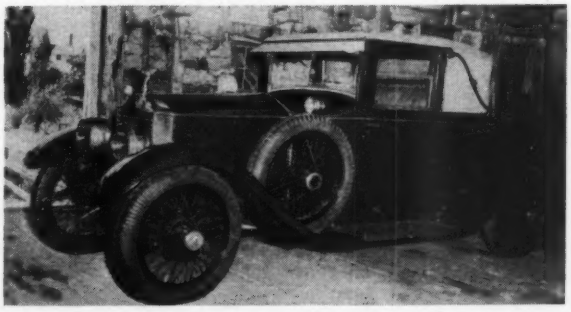
Compare those prices to the following. In Los Angeles, a Duesenberg "J" with a Rollston fake convertible sedan body (hard top covered with canvas and styled like a convertible top) in almost perfect condition is for sale for $2,500. Since the war, $5,500 has been spent to restore the car to original condition. In Louisiana a '36 Cord sedan with trunk was sold for $150 in fair condition. A P-1 Rolls from the same locale brought $750 in good condition.

This is the fifth month of "Classic Comments" and one startling development has me worried. Of all the letters received, not one has been from a woman. No sign whatever of interest in the classic cars has come from any female of any age. Is it really true that only men are fascinated by automobiles?

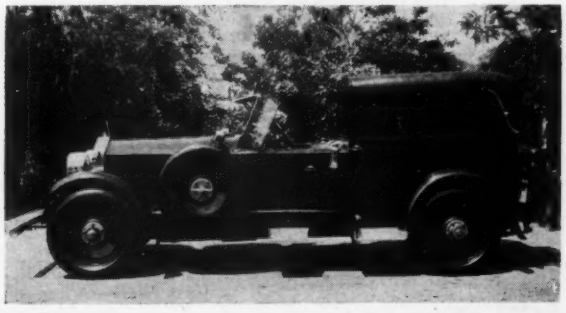
It may be of interest to readers to know that there is no particular concentration of classic car interest in any age group of men. There have been letters from owners as young as 17 and as old as 60. Nor are there any geographical limitations. Maine, Florida, Washington, California—the four corners of the United States—are all represented.

Next month there will be a short description of Arthur Hoe's special Duesenberg "J." This job has whipped two XK-120s in standing ½-miles by two seconds.

Car of the Month will be a 1932 Chrysler Custom Imperial phaeton.



BABY ROLLS convertible coupe. A 1922, 20 hp model in mint condition owned by N. Eastman Webber, classic car fan in Waterville, Maine



FORMAL Town Car shown here is a 1924 McFarland, originally priced around $7000, is now owned by Elliott Wiener, Los Angeles collector

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Stars and Their Cars

(Continued from page twenty-five)

The 1951 counterparts of these cars—the Italian-made Maserati and Ferrari—have not found a single buyer in the movie colony. Instead the more economical Jaguar XK-120 is the big favorite. Its $4,000 price coupled with a once-clocked speed of 132.6 miles per hour are the two selling points that have won such stars as Clark Gable, Dick Powell, Humphrey Bogart, Gary Cooper, Bob Stack and Maxine Andrews. But the reader will search in vain for any evidence that these owners are in love with their XK's. Instead they regard them as simply fast transportation. Gary Cooper drives his at high speeds on the way to Sun Valley. Humphrey Bogart likes to waste no time getting to his boat.

One of the few remaining automobile enthusiasts is George Stoll, music director at Metro-Goldwyn-Mayer. He bought his two cars from Robert Montgomery shortly after the Second World War. The Lagonda, a "Rapide" V-12 roadster, is a magnificent combination of custom coachwork and sporting engine that has been timed at 129.8 miles per hour in this country. This car Mr. Stoll keeps for his own use. Originally it cost slightly over $16,000 in England.

The other car in the Stoll's garage is Mrs. Stoll's personal car—a Rolls-Royce Wraith Mulliner owner-driver saloon, powered by the 25/30 hp engine. Despite the small engine, the Wraith is all Rolls from the square, majestic radiator to the razor-edge creases of the rear fenders. Sterling-silver fittings grace the vanity cases built in where rear-quarter windows are usually located.

Much as she enjoys the Rolls, Mrs. Stoll is occasionally tempted to trade it in on something less conspicuous. Other drivers, it seems, harbor a grudge against the stately machine. Perfectly sober citizens run their Buicks bandy-legged beating her away from traffic lights. Belligerent types have deliberately forced her off the road. When she is parked, strange faces leer in at the window and ask "Where ya gonna get spare parts, huh?" or "How many gallons to the mile?" When she tells them, quite truthfully, that all parts are easily obtainable and she gets between 18 and 20 miles to the gallon for city driving, her inquisitioners fire her a look of evident disgust to express their disbelief.

If that modest Mulliner sedan draws so much fire it is not difficult to understand why publicity-sensitive stars have refused to appear in town-cars and limousines. In the first years of the depression there was an occasional outbreak of bitterness toward the big cars. Dick Powell's Packard convertible sedan was slashed viciously one night when the star had left it parked on the street. A Hollywood producer was publicly booed when he drove to a formal premiere in his Rolls-Royce town car. Not many of these incidents occurred but they were part of the reason why Hollywood went off the glamour standard.

Occasionally the great automobiles were worth their weight in salary checks. Richard Arlen's first car was a Locomobile, bought after a fire had gutted the interior. In those days the Locomobile was selling for $10,000 in custom models and Dick's salary was a modest $150 per week. To help boost his income, Dick refinished the Locomobile, installed a genuine Victoria top over the rear seat of the phaeton body, and put it up for rent. Within a month, Dick recalls wryly, the Locomobile was making $250 a week and he hired a chauffeur.

In later years, Richard Arlen owned a succession of fine cars. He especially remembers a Mercer Raceabout; a Packard, fitted with a custom landaulet body by Murphy in Pasadena, that sported a breakaway windshield and massive searchlights mounted on heavy running-board stanchions; two Cadillac phaetons with extra cowl and windshield for rear-seat passengers; and, a British Standard Swallow sport car. Dick's interest in speed was reflected in a series of racing pictures produced by Paramount in which he was starred. These were formula-plot money-makers that featured a minimum of chatter and a heavy emphasis on automobile track-racing scenes. It is perhaps due to the sudden change in publicity policy that no more racing pictures were made until "To Please a Lady" in 1950, starring Clark Gable.

Gable was a natural choice for an automobile picture. For many years, Clark spent a healthy share of his income for bigger, faster sporting machines. At 16, the future star picked up considerable mechanical experience working in the oil fields as a tool dresser for $12 a week. In later years he added to this original fund of knowledge until he was able to tear his Duesenbergs down and knit them back together.

Gable bought his first car in 1926—a $36 Model T Ford—and shaped it into running condition with his bare hands. He was playing the part of a background soldier in "The Merry Widow," which starred Mae Murray and Jack Gilbert, when the 1927 custom-builders' salon opened. Gable parked his T outside and went in to stare at the creations of American and foreign craftsmen on such famous chassis as Cadillac, Packard, Rolls-Royce, Isotta-Fraschini, Duesenberg, Lincoln. Suddenly he stopped short to admire a Hispano-Suiza that had just been knocked down to Emil Jannings for $15,000. The salesman hurried up and murmured the usual polite question.

Gable shook his head. Then he looked up and said, "I'll be back."

In later years, Clark did go back but he never did buy a foreign prestige car. Perhaps the finest automobile he ever

owned was the Duesenberg supercharged speedster, one of two built on the short 125-in. wheelbase, which he bought for Carole Lombard. The engine was rated at 320 hp and top speed was reputed to be just shy of 140 mph. Unfortunately, the Duesenberg proved to be too bulky and stiff for casual trips around town and Carole sold it to George Stoll after 2,800 miles.

Another Gable car of note was the Packard speedster, a 1934 V-12 chassis with a Le Baron boat-tail roadster body styled by W. E. Miller. Gable might even be described as a Packard and Duesenberg specialist, since he owned at least one other Duesenberg and several stock-body Packards.

The twin to Carole Lombard's Duesenberg speedster was owned by Gary Cooper, another long-time speed and sport hound. When Gary made *The Virginian* for Paramount, he and director Victor Fleming staged a race every morning on the way to work. Gary owned three Duesenbergs — the speedster, a Derham-body phaeton and a Le Baron phaeton—plus a Lagonda.

Not all the magnificent automobiles belonged to such rugged actors. Rudolph Valentino, the most romantic of them all, showed a marked preference for the sumptious Italian-made Isotta-Fraschini. He had two of them, one with an American body built by Fleetwood and the other with a Castagna body, built in Italy. The Fleetwood town brougham was later transformed into a taxi and rented to the studios until it became too familiar to movie audiences. Finally it was consigned to the scrap heap during World War II.

But Valentino loved his speed, too. Dick Arlen remembers a Fiat phaeton that was used for beach trips. There were no springs in the seats and the engine was very hot for its day. Valentino loved to bounce his passengers along the back roads at top speed—he was an ace driver—taking the bumps in high good humor. His proficiency with automobiles did not end with driving. Somewhere he had picked up the mechanical skill required to repair his own complicated machines.

Actors loved the sporty cars and actresses admired chic and prestige. The most fabulous of them all, Gloria Swanson, chose an Isotta-Fraschini for the former and a Rolls-Royce for the latter. In addition, she and her husband, the *Marquis de la Falaise et de la Coudraye*, bought a madly stylish Lancia. This did not represent great extravagance to Gloria. Her salary was an astounding $20,000 per week, of which she kept $14,000. If the same salary were paid today, which it isn't, Uncle Sugar would shortstop her check and remove about $17,000.

In the same wildly extravagant era, an ex-Follies girl walked into the Hollywood Packard agency and pointed at three cars while the salesman made brief notes. Then she walked out. In just under five minutes she had bought $12,000 worth of Packards without bothering to open the doors and look inside. This same girl later received a Mercedes as a gift from an ardent admirer. The Mercedes had cost about $20,000 and it looked imposing but after a few days behind the wheel, the girl knew she didn't care to ever understand the meaning of all the confusing gauges and switches that operated the powerful, noisy engine. She waited for 14 months to find a buyer for the car and finally sold it for $2,800. The odometer had barely ticked past the 500-mile mark.

Al Jolson was responsible for much of the Mercedes popularity in the land of make-believe. He owned three, each of which cost a minimum of $20,000. The most famous of these is the Saoutchik-body SS model roadster, but it was pale compared to the $28,000 showpiece that Al gave to Joe Schenk. This was a town car, trimmed throughout with gold-plated hardware. Upholstery was decorated with an intricate bird-of-paradise motif. The car later found its way to Peaches Browning as a gift from "Daddy."

There were freakish automobiles in the colony, too. Grant Withers once owned an Auburn with a special 173-in. wheelbase. The runningboards were well over six-feet long. Buster Keaton had a special Land Yacht built by General Motors, containing a shower and a kitchen and wearing an observation platform on the rear. Tom Mix rode in a pure-white Rolls-Royce with his initials on the door in letters a foot high. Between the headlights a pair of bull horns had been mounted.

Today, the parking lots of Ciro's and the Mocambo and Romanoff's are filled with orderly rows of Cadillacs. All new Cadillacs, all distressingly similar. The mildly prosperous pretender is indistinguishable from the most talented star on the highway. The few XK-120's and the small flock of MG's plus a sprinkling of other small foreign semi-sport cars are used for daytime, informal events. There is not a single Rolls-Royce of post-World-War II manufacture owned by a member of the motion picture clique. Louis B. Mayer owns the closest approximation to a town car—a Chrysler limousine with blanked-out rear quarter windows, and a special layer of leather over the top. Bill Boyd drives the nearest thing to an American sporting car—a Cadillac convertible coupe with a second windshield hinged on the back of the front seat and furry calfskin floor carpets.

Perhaps the stars just don't have the money. That's the most common answer. But it seems more reasonable to say that there is a tacit agreement not to spend money for extravagant transportation. If a few important names begin the craze again, others must follow. And publicity agents agree with stars, writers, producers and directors that what the movie industry does *not* need is an orgy of self-indulgence.

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DUSTER DATA

AN ENGINE WITH NO VALVE TROUBLES—THE WILLYS KNIGHT

Text and Photos by Tracy Gilpin

GEORGE M. HART, Assistant Treasurer of George School, Pennsylvania, is a dedicated man. When it comes to automobile engine design, Hart holds an unwavering loyalty to the double sleeve-valve and let the poppets warp and tap as they will for the rest of the motoring public. As proof of this enthusiasm are the three Willys-Knights pictured here, only a part of Hart's collection of "Silent Knights" of two or more decades ago.

Throughout automotive history sleeve-valve designs have held interest. In the United States poppet-valve designs are universally used today and numerous present-day motor enthusiasts are not even familiar with either of the two principal sleeve-valve types: Burt-McCullum's single sleeve or Charles Y. Knight's double sleeve.

It is doubtful that engines of sleeve-valve design will ever be used again in automobile installations because of the relative improvement in both silence and performance of poppet valves. But shortly after the turn of the century, poppet valves were a source of constant trouble and were largely responsible for the noisy performance of many veteran automobiles. Timing, grinding, reseating or replacement of valves was commonplace—and in some cars, valve grinding and reseating was as frequent a necessity as an oil change today.

Charles Knight's engine design eliminated this type of valve trouble. In the Knight engine, two sleeves or liner inserts fit into the cylinder bores. These sleeves had slots or ports cut in them. The piston travelled inside the inner of the two sleeves and was linked by connecting rod to crankshaft in the conventional manner.

However, instead of using a cam to regulate the valve motion, Knight's sleeves were set in motion by connecting rods driven from a small crank, a ½-time shaft which corresponds roughly to the camshaft of the poppet-valve design.

The two sleeves were in continuous motion admitting fresh fuel charges and exhausting gases by periodic coincidence of the port slots in the sleeves with ports in the main cylinder block casting, which in turn communicated by ports with the induction and exhaust systems. In the Willys-Knight engine, the longest-lived example of this design, the outer sleeve slides in the cylinder block while the piston slides inside the inner sleeve, the latter having an up-and-down axial motion only.

The Burt-McCullum sleeve-valve varied in that a single sleeve only was used with both the sleeve and piston in motion, the sleeve sliding within the block, the piston sliding within the sleeve, which had both an axial and rotational movement actuated by a wobble crank drive. In essence the single sleeve moved up and down and at the same time twisted on each stroke to present the open sleeve slots to matching slots in the block at the proper time for induction and exhaust.

Both types of sleeve-valve designs offered considerably less noisy operation than their contemporaries of poppet-valve design—but the sleeve-valves also had decided disadvantages, principally excessive oil consumption. And, in the event of piston seizure, the entire sleeve driving mechanism, not just a single connecting rod, was likely to be damaged, causing expensive repairs.

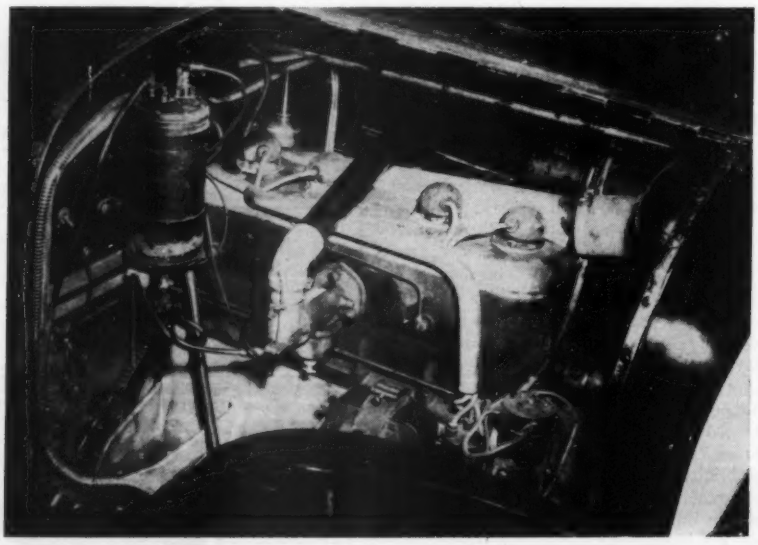
Although Knight's design was perfected as early as 1907, he could not find any ready acceptance of his engine because of its greater manufacturing expense. Knight finally interested the English Daimler company which, shortly after 1907, was in bad financial condition and needed some radical departure from its earlier engine design to regain public confidence. The sleeve-valve design looked like a good bet, so the Daimler-Knight engine was installed in busses of the A.E.C., which operated in the London area, and proved highly satisfactory.

As a direct result of the Daimler-Knight success in busses, the Minerva Co. of Belgium started producing a Knight-engined Minerva under Knight license as did Peugeot in France. Back in the United States the F. B. Stearns Co. of Cleveland, a subsidiary of Willys-Overland Co., released details in 1913 of the Stearns-Knight, a sleeve-valve-engined car, with engine manufactured under Knight's license. The first showing of the new car, identical to the 1913 model, was made in 1914, the same year John Willys introduced the Willys-Knight. The K-19 model, the first of the Willys-Knights which were to continue to be produced through 1932, were available either as two-passenger roadsters or five-passenger tourers at $2475.

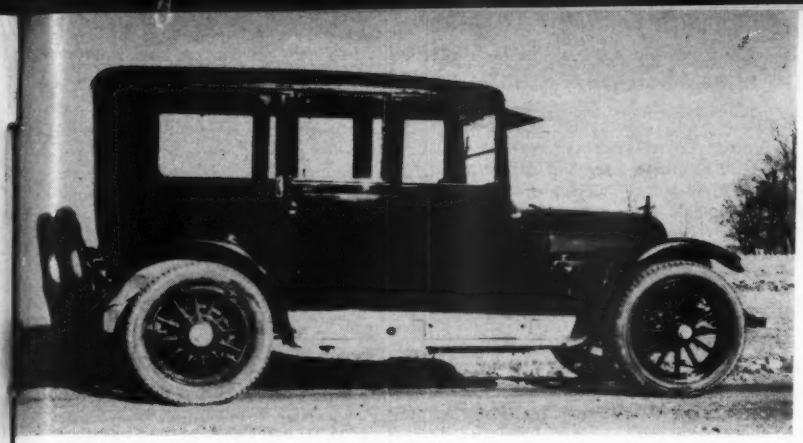
This first model Willys-Knight with its octagonal-shaped radiator was well received, but a new Pierce-Arrow with headlights in the fenders was the talked-of-car at the 1914 auto shows.

The touring car pictured here is a 1916 seven-passenger which still has its original upholstery and has been driven less than 2500 miles. George Hart bought it from an estate, the former owner of which had put only 1281 miles on the car at the time of his death. The engine is in perfect running condition and has not been touched. The original paint was unscratched but dull and a new finish was applied. The only non-stock items on the car are a set of Firestone replacement tires, available for any model antique car, a new battery and a spare rim from a Reo Speed Wagon.

The engine is a Model 88-4 Engine No. 6981, Knight patent license No. 28625. Some of its interesting features include the Stewart-Warner vacuum gasoline system, Tillotson Model 4 carburetor, Auto-Lite starter and lighting system, and a



AN 88-4 model Willys-Knight engine. Note exposed flywheel with ring gear. To left of flywheel is an automatic tire pumping mechanism



WILLYS-KNIGHT touring sedan (1917) is pictured here. Passengers entered rear of car; the driver entered from left side of the cab

power tire pump mechanism, visible on the firewall.

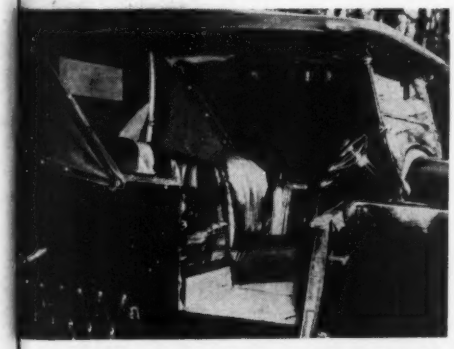
The three-point suspension engine was cooled by natural circulation (thermosyphon) with a combination force-feed and splash lubricating system. The 40-horsepower engine had a 4⅛-in. stroke and 4½-in. bore. The wheelbase is 121 ins. with a 56-in. track.

At the same time Willys-Knight was also available in a seven-passenger touring model of 125-in. wheelbase with a model 88-8 engine, a V-8, sleeve-valve motor that was rated at 65 horsepower with a 3⅜-in. bore and 4-in. stroke. The eight-cyl. car sold for $1950 f.o.b. Toledo.

The heads of the pistons were concave so that the combustion chamber (when pistons reached t.d.c.) presented an elongated spherical volume rather than the customary flat-bottomed chamber. In general the advertising claims for the engine were justified. No valves needed grinding. The engine was relatively silent in operation. There were no springs to stick or break, but the car was an oil burner, particularly at high speeds.

In both the 88-4 and 88-8 the three forward speed and reverse selective sliding gear type transmission were located at the rear axle, with the flywheel, directly behind the motor mounts, fully exposed with rim gear for linkage with starting motor.

The rear wheel brakes, foot contracting, operated for service purposes with a hand operating emergency brake of an expanding type.



NOTE unique seating arrangement of 1922 Willys-Knight roadster. Driver sits alone in single front seat forward of luggage compartment

The touring sedan is a 1917, 121-in. w.b. model with essentially the same engine as the four-cyl. touring car. It, too, is a seven-passenger with a unique door and seating arrangement. On the right hand side of the car there is a single door giving access to the rear. On the left a single door forward is used by the driver. The front seats are two separate arm chairs with a passageway between so the front seat passenger can enter through the rear of the car.

The car is actually a forerunner of present-day "hardtop convertibles." The three large windows on either side are sashless. The two forward windows drop down into the sidewalls of the body and the rear windows are removable. There is a storage compartment behind the rear seat so that the finished conversion gives a clean, glassless touring effect without the touring car's scissor-type bracing to obscure the vision of the rear seat passengers.

The Willys-Knight roadster pictured is a Model 20-A, 1922 vintage, and was called a two-passenger roadster although it actually seated three comfortably. The driver sits alone in a single forward seat behind the wheel. Directly behind the driver's seat is a small storage compartment and to its right is a seat that has adequate width for two passengers.

The four-cyl. engine, like the 88-4, is rated at 40 hp, but the bore is only 3⅝ ins. with a 4½-in. stroke. A dry multiple-disc clutch replaced the earlier cone-type with leather face and the transmission was moved from the rear axle to become a unit with the engine. The main shaft of the transmission was set up on a single ball bearing forward and a double-ball in the rear with the countershaft set up in bronze bushings. A bell housing enclosed the flywheel and clutch.

As the eccentric shaft, *i.e.*, the shaft driving the sleeves, is chain impelled, it is quite possible that the chain may either be broken, entirely missing or replaced improperly on old Willys-Knights. For the collector who has come upon one of the 88-4 types, the following timing instructions are offered by Mr. Hart.

To check sleeve timing, take off the exhaust manifold and scrape away any carbon deposits from sleeve ports and cylinder ports of number one cylinder. Remove the spark plug and insert a small pencil-type flashlight into plug hole. Turn flywheel in normal operating direction until thin line of light shows through exhaust ports, *i.e.*, between upper edge of outer sleeve port and lower edge of cylinder port. On flywheel will appear a mark 1-4/EC which should at that instant be aligned with scribe mark on rear of block or crankcase.

If the two marks fail to coincide within ¼ in., the sleeves must be retimed. This is done by first aligning the two scribe marks mentioned above. Then remove chain and turn eccentric shaft in normal operating direction until scribes on the hub, sprocket and chain housing are aligned. Then replace chain and check with light.

To time the ignition, with number one cylinder on compression stroke turn flywheel until mark TC/1-4 is rotated 2¼ ins. beyond scribe mark on case or cylinder block. (The marks varied in location on different models.)

OWNER George M. Hart polishes up his 1916 W.K. touring car for its "Duster Date" portrait

Next slip the generator and distributor unit (called "igniter" at that time) out of mesh. Retard spark lever. Turn generator shaft in direction it is driven by engine until breaker points start to open at which time rotor should be in line with terminal leading to the number one cylinder.

The final Willys-Knight was the 87 hp 1932, a six-cyl. sleeve-valve job—not the first six-cyl. Willys-Knight, however, as John Willys had tried one as early as 1918.

If you should come across one of the very early 1914 Willys-Knights, the original four-cyl. job, and find it registered as manufactured by Garford Company, Elyria, Ohio, you will have an excellent collector's item. John Willys controlled not only Willys-Overland, but at the time the original Willys-Knight was produced, Willys-Overland controlled numerous other automobile manufacturing and auto accessories concerns. The first of the octagonal radiator shell style Willys-Knights were Garford Co. made and these models are comparatively rare today.

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Studebaker Motor Trials

(*Continued from page twenty-three*)

semi-elliptics. These rear springs have polyethylene liners to keep out dirt and moisture. Direct-acting shocks are used at all four wheels.

The appearance of the Studebaker causes an immediate reaction in the minds of most persons: they either like it or have a positive distaste for it. It is not for us to state whether or not the lines are good or bad from an esthetic point of view: however, they do possess strong originality. The entire body is functional: it includes good headlight placing, excellent access to the engine, easy and economical replacement of body sections, minimum intrusion of powerplant and propeller shaft on passenger and luggage space, and visibility that is about tops.

Although both front and rear seats are ample to accommodate three people with ease, the transmission tunnel reduces the middle passenger's legroom in the front seat. Legroom in the rear seat for all passengers is excellent, thanks to the two-piece driveshaft, which eliminates the tunnel in the rear floor. This two-piece shaft is used primarily for additional legroom, although, because of its shortness, it does have the added advantage of being less susceptible to vibration and whip periods at high speeds.

Studebaker has followed its established pattern of providing easily legible instruments, these being illuminated at night with "black light." Another good feature for night driving is the use of "black light" for showing the setting of the automatic transmission gear selector.

An improvement in controls could be made in the hood latch and starter handle. These are identical in appearance, both being T-handles, and to confuse the issue, are side-by-side. On the Motor Trial the hood latch was pulled a minimum of four times instead of the starter. This necessitates getting out of the car and closing the hood before attempting another start. The controls could be painted sharply contrasting colors or one of them could have a different shape.

Other minor points for improvement: inside door handles with a more positive grip (the door is sometimes difficult to open); and, relocation of the window handle on the driver's side (it is too close to the steering wheel for convenience).

More than anything, it's the upper end of the new V-8 engine that fascinated us most. It was here that we saw another manifestation of the welcome, long-due trend in American engine design toward greater efficiency. Increased power goes with the greater economy of such engines and it's in the "upper end" that the big results are being gained. Studebaker's approach to the problem involves the use of overhead valves inclined slightly away from the cylinder axis, in a wedge-shaped combustion chamber. Remarkably good "straight-through" porting completes the layout, enables the engine to breathe more freely and produce much greater power for a given amount of fuel.

Trend Trials Number

The Studebaker Commander, Automatic Drive equipped, falls in the $1951-2200 price bracket, and has been given a Trend Trials No. of 29.1. This number is remarkably low, bearing out our contention that the car is a good buy (the lower the number, the better the buy).

The TT No., as with previous cars we have tested, was arrived at by totaling the cost per bhp (which tells you how much it costs for the power of the automobile), the fuel cost per year (based on the overall fuel consumption average obtained on the Motor Trial), the normal maintenance upkeep and average depreciation percentage. The depreciation percentage is arrived at as follows: The average used car price of each model from the five previous years is subtracted from the new model's price. When this is averaged, it gives the average depreciation percentage, projected over a one-to-five-year period. This *should not be* construed as the *average yearly* depreciation.

Inside and out, both mechanically and style-wise, the '51 Studebaker Commander is a well-conceived and well-finished product—it's a lot of car for the money.

TABLE OF PERFORMANCE

DYNAMOMETER TEST

1200 rpm (full load) 30 mph	32 road hp
2000 rpm (full load) 49 mph	53 road hp
3000 rpm (full load) 72 mph	76 road hp (max.)

ACCELERATION TRIALS (SECONDS)

Standing start ¼-mile	:22.11 (D)*; :20.67 (L-D)**
0-30 mph (no gear change)	:07.44 (D); :05.91 (L)
0-60 mph through gears	:21.22 (D); :18.15 (L-D)
10-60 mph in DRIVE (downshift to intermed.)	:18.29
30-60 mph in DRIVE (downshift to intermed.)	:12.48

TOP SPEED (MPH)

Fastest one-way run	93.55
Average of four runs	92.78

FUEL CONSUMPTION (MPG)

At a steady 30 mph	25.73
At a steady 45 mph	25.58
At a steady 60 mph	21.79
Through light traffic	22.68
Through medium traffic	18.49
Through heavy traffic	14.21

BRAKE CHECK

Stopping distance at 30 mph	43 ft. 6 ins.
Stopping distance at 45 mph	98 ft. 5 ins.
Stopping distance at 60 mph	191 ft. 8 ins.

*Shift using drive only
**Shift from low to drive

GENERAL SPECIFICATIONS

ENGINE

Type	Overhead valve, V-8
Bore and Stroke	3⅜ x 3¼ ins.
Stroke/Bore Ratio	0.96:1
Cubic Inch Displacement	232.6
Maximum Bhp	120 @ 4000 rpm
Bhp/ Cu. In.	.516
Maximum Torque	190 ft. lbs. @ 2000 rpm
Compression Ratio	7:1, Optional 7.5:1

DRIVE SYSTEM

Transmission—Conventional three-speed. Ratios: Low—2.57:1, Second—1.55:1, Third—1:1, Reverse—3.48:1
Automatic drive, torque converter.* Ratios: Low—2.31:1, Intermediate—1.44:1, Direct—1:1, Reverse—2.01:1, Max. torque converter torque ratio—2.16:1
Rear Axle—Spicer, semi-floating. Standard—4.09:1, Overdrive†—4.56:1, Automatic Drive—3.54:1

DIMENSIONS

Wheelbase	115 ins.
Overall Length	197½ ins.
Overall Height	61¾ ins.
Overall Width	70 11/16 ins.
Tread	Front—56½ ins., Rear—54 ins.
Turning Radius	Right—19 ft. 9 ins., Left—19 ft. 4 ins.
Turns, Locks to Lock	3½
Weight (Test Car)	3280 lbs.
Weight/Bhp Ratio	27.3:1
Weight/Road Hp Ratio	43.2:1
Weight Distribution (Front to Rear)	55.5/44.5%

*Optional, $201.25 †$97.85 extra

Motor Whys—Batteries, Spark Plugs

(Continued from page thirty-eight)

center electrode carries a punch of from 20,000 to 30,000 volts when operating properly.

If you bought your car new, the plugs installed at the time were properly selected in heat range and had the proper electrode gap setting for best overall performance at normal operating speeds. However, as your car grows older, rings and sidewalls of cylinders wear. Greater quantities of oil are pumped into the combustion chamber and the compression pressure is lowered. To correct for this, plugs of a hotter variety are required.

Simply, a hot plug is one that retains more of its heat without dissipating it to the water-cooled walls of the cylinder. By reverse order, a cold plug more rapidly dissipates its heat. Inspection of your plugs will indicate if they are proper for your model of car in its present condition.

H. WIEAND BOWMAN

TWO SPARK plugs, one new at left, one which has been in operation for 15,000 miles at right. After replacement of plugs in condition similar to one at right motorists have reported up to 20 per cent increase in gasoline mileage

If the plugs on inspection appear to be oily and the porcelain reach inside the plug is black or filled with carbon deposits, the plug is too cold. If the plugs show a warm chocolate brown color they are proper for your engine. If the electrodes are white and the porcelain reach contains whitish deposits, the spark plugs are too hot.

An overly cold plug will cause misfiring and fouling. One that is too hot may burn pistons, and will cause uneven firing through pre-ignition, *i.e.*, the firing of the charge in the combustion chamber before its properly timed interval. In extreme cases of overly hot plugs an engine will continue to fire roughly after the car has been brought to a stop and the switch has been turned off.

The use of leaded gasoline, *i.e.*, high-test gasoline to which tetra-ethyl lead has been added, may cause oxidation and these oxidized deposits will impair the plugs' function. Generally speaking, the higher the compression ratio, the colder the plug required. Don't, for example, expect to put a set of high-compression heads on your V-8 and use the same plugs. However, the checks on coloration of your plugs after a brief test run will indicate whether your new selection is proper. Any service station will have a chart listing the various manufacturers' code designations for heat ranges.

Sandblasting of spark plugs will help salvage a set of plugs in poor condition, but the blasting will also hasten complete deterioration. Sandblasting wears as it cleans. On worn plugs the electrode tips will be cleaned of carbon and oxidized deposits, but also metal will be removed. Broken or cracked cores permit leakage in plugs and excessive leakage will cause a short circuit of the high tension and render the plug ineffective or spasmodic in its firing. Sandblasting grinds away the high polish of the porcelain and renders it more vulnerable to breaks and cracks. At present day gas prices, periodic replacement of plugs, certainly every 15,000 miles, is an economy. Every 5,000 miles, removing and soaking the plugs overnight in solvent, followed by a brisk scrubbing with solvent and Bon Ami and a final solvent rinse will keep them in condition between replacements.

Always adjust the plug gaps to original motor specifications for your car. That gap was established by the output of your car's coil and this gap should not be too great for this coil output. When adjusting, make all changes by bending the outer electrode only. Never bend the center electrode or cracking of porcelain may result. The check should be made with a round, rather than a flat, thickness feeler for an accurate measurement, as the flat feeler will, because of pitting of electrodes, minimize the actual gap clearance.

When plugs are re-installed be certain the copper gasket is in place. Tighten plugs finger tight. If a new gasket is installed, then with a wrench give the plug an added half to three-quarters turn. If the original gasket is re-installed, tighten in the same manner but give only one-eighth to one-quarter turn with the wrench. This will prevent stripping of head or plug threads and possible distortion of gap setting.

Let Truckers Help You

Far from being the road hogs of former years, the present-day truck driver holds an enviable safety record and can always be depended upon for help in an emergency. A basic knowledge of truckers' hand and light signals can make your driving easier and safer.

By night, and partially by day, truckers use their lights to advantage. An overtaking truck, rather than blasting away with its air horn, will blink its lights from dim to bright three times as a signal to the slower moving vehicle that it wants to pass. If, for any reason it is not safe to pass, the overtaken trucker will blink his clearance lights, *i.e.*, the banks of lights on sides and rear of the truck. Should the road ahead be clear for passing, the overtaken truck blinks his headlights as a signal to move on through.

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ACCESSORY TRIAL . . .

Here's How to Save Gas

by Fred Bodley

SINCE installing the Mile-O-Meter on my car, reading the claims the manufacturers make and the uses they recommend, I have found it to be as represented. The instrument itself is well made and accurately calibrated. The installation is simple and except in cases where the intake manifold has to be drilled and tapped, it can be made by the average individual.

FRED BODLEY, master mechanic, installs the Mile-O-Meter on his car, preparatory to the Accessory Trial, found it a very simple job

The Mile-O-Meter is an informative visual check and gives insight into the otherwise obscure condition of the engine. Once the driver knows the action of the indicating needle under different operating conditions of the engine when it is in good condition, any variation will be immediately apparent. Then, by actual checking in accordance with the instructions furnished with the instrument, he can determine what corrective measures are needed before expensive and extensive repairs are necessary.

As to obtaining more mpg, I found that after watching the Mile-O-Meter needle carefully for the first hour or so of driving and noting its action (which is instantaneous with the movement of the throttle) I became very conscious of the fact that I was invariably using too much throttle. In other words, by letting up slightly on the throttle I could maintain the same speed or relative amount of pickup. It is a well-known fact that an internal combustion engine under certain load conditions will only put out so much power no matter how wide the throttle opening is. The fact is not apparent to the driver unless he has a visual means of checking against the speedometer.

I found that by applying the knowledge gained by the aforementioned three mediums I improved my car's fuel consumption by 2½ mpg. Different brands of gasoline made a slight difference in the reading of the Mile-O-Meter, which gave me a check on which brand and grade best suited the engine.

The Mile-O-Meter is a splendid means of immediately determining the changes made by adjustments to the carburetor and ignition. When running tune-up oil through the engine, facts which ordinarily are revealed only by road testing are recorded visually on the Mile-O-Meter.

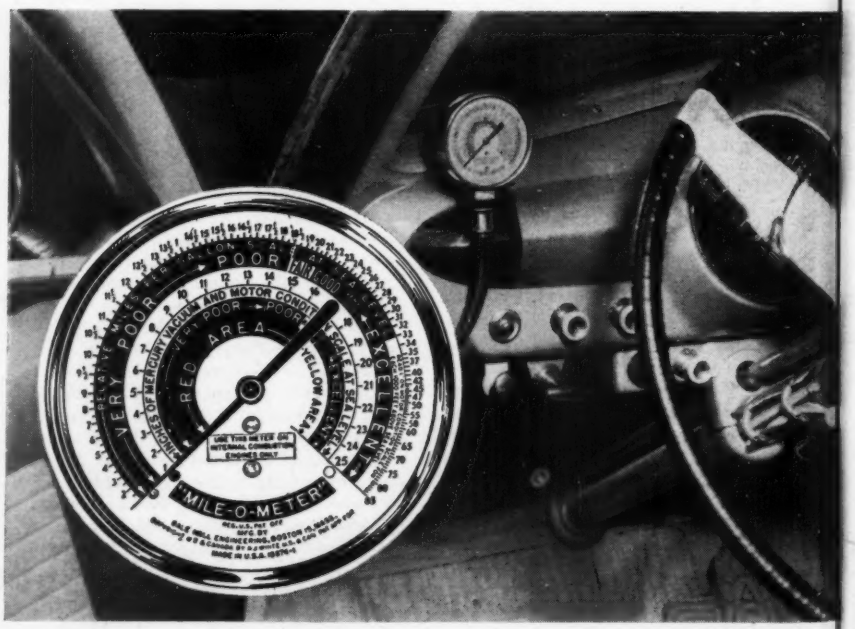
The meter can be used as a tune-up gauge. A poor carburetor adjustment, for example, is indicated by a floating needle. By correcting the mixture the needle will hold steady at 17 to 21, if the engine is in good condition. The ignition timing can be set with good results by rotating the distributor in an advance direction until the needle reaches its highest reading, retarding to a point where the needle is ready to fall back, and then locking the adjustment. This procedure compensates for any lag in valve timing due to worn gears or loose chains.

A burned valve or bad plug will show a drop of several points each time the bad cylinder fires. By shorting each plug in turn and watching the needle you can determine which cylinder is at fault. The bad cylinder shows no change in needle action when shorted. When adjusting valves with the engine running the Mile-O-Meter is a great help. Using the correct thickness feeler gauge, you tighten the adjustment until the needle falls off, then back off slightly until the needle is steady. You will then have the right clearance.

In another test, I connected the Mile-O-Meter to an engine I knew had good valves but poor rings. The needle showed a steady, low reading of 15. On another engine which I knew had the opposite condition the needle was very unsteady, fluctuating around three points when the cylinder with the weak valves fired.

I made quite a few more tests on cars coming into the shop with bad points, poor plugs, low compression and clogged carburetors. The conditions showed up on the Mile-O-Meter as shown on the trouble chart furnished by Gale Hall Engineering with the instrument.

It is with no hesitation that I recommend the use of a Mile-O-Meter for those persons who wish to save gas and would like to have a convenient engine tune-up gauge. The price also seems reasonable —$9.75 for the standard model; $14.95 for the deluxe model.



TYPICAL installation of Deluxe Mile-O-Meter. Other possible locations are on steering column, center window post, or in place of car's clock

Mobilgas Economy Run

(Continued from page thirty-five)

smoothly on starts and stops, considerably better mileage could be obtained.

Question: Do you recommend getting out of low gear quickly?

Bill Stroppe: In getting out of low gear quickly, we have found that we can "feather out" after we get the approximate speed we want. We "feather back," then go into second, doing the same thing there. When we go into high, we "feather back" until we approach the speed we want to travel.

Question: Everybody says they won. How come so many winners?

Answer: There was only *one* Sweepstakes Winner. That was the Lincoln. The other "winners" were class winners, nine main classes and two special lightweight classes. These classes were broken down according to price. Here's a list of the class winners:

Make and Model		Miles Per	Ton
Class A	**Place**	**Gallon**	**Mpg**
Ford Eight	1	25.994	54.587
Studebaker Champion	2	28.621	54.321
Ford Six	3	25.915	53.838
Plymouth Cranbrook	4	22.990	47.934
Chevrolet Styleline	5	22.041	45.956
Class B			
Studebaker Commander	1	28.001	58.173
Nash Statesman	2	26.122	52.637
Class C			
Mercury	1	25.945	59.868
Studebaker Land Cruiser	2	27.644	58.744
Nash Ambassador	3	25.926	58.268
Kaiser Deluxe	4	24.713	52.828
De Soto Deluxe	5	21.622	51.135
Class D			
Packard "200"	1	22.023	53.020
Chrysler Windsor	2	20.886	52.268
De Soto Custom	3	19.921	47.760
Hudson Commodore Six	4	19.590	46.723
Class E			
Lincoln	1	25.448	66.484
Hudson Hornet Six	2	22.623	53.785
Class F			
Cadillac Series "61"	1	21.719	55.492
Packard "300"	2	20.941	52.196
Class G			
Chrysler Imperial	1	21.178	59.457
Cadillac Series "62"	2	21.531	56.412
Lincoln Cosmopolitan	3	17.123	47.601
Class H			
Cadillac Series "60" Special	1	21.979	58.795
Class I			
Chrysler Crown Imperial	1	19.208	63.289
Cadillac Series "75"	2	19.869	58.513
Special Lightweight 4-Cylinder Class			
Henry J	1	30.109	49.153
Willys	2	26.769	46.110
Special Lightweight 6-Cylinder Class			
Nash Rambler	1	31.053	53.489
Plymouth Concord	2	24.145	48.954
Henry J	3	28.860	48.340
Willys	4	24.973	43.266

DUE CREDIT

NOTE: To give credit where credit is due, we wish to make a correction in the rundown of winners at the Daytona Speed Trials. After we went to press with the May 1950 issue, we learned that Tim Flock's '50 Lincoln had been disqualified for running with a loose exhaust manifold. This, naturally, gave him additional top speed because of decreased back pressure. First place, therefore, went to Tom McCahill in the '51 Chrysler V-8.

—Editor

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TRADE TOPICS

WHETHER THE EVENT IS A HILL CLIMB, speedway or road race, the combination of gear ratio and tire size is always an essential performance factor. To spare you the bother of becoming a slide rule artist, Ed Iskenderian (the camshaft man), has produced a circular or dial type computer that makes possible the almost instant conversion of rpm and mph to gear ratio and tire size, and vice versa. Thrown in for good measure are tables of gear ratios of the various Ford and Chevrolet transmissions. The Ratio Computer can be had for 50 cents from Iskenderian Racing Cams, 5000 West Jefferson Street, Los Angeles 16.

★ ★ ★

A NEW CRANKCASE, GAS TANK, AND TOP OILER ADDITIVE has just been placed on the market and is said by its manufacturer to perform these functions: freeing of sticking valves, valve lifters, rings; removal of gum, varnish, and carbon deposits; improvement of oil penetration to close tolerance fits. The product, "Indo-Chem 99," is said to be absolutely non-injurious to engine parts and is available in small or large containers from Industrial Oil and Chemical Co., Milford, Mass.

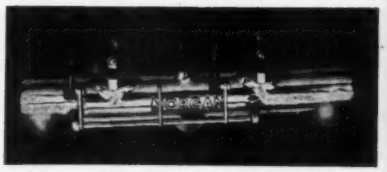
★ ★ ★

A MAJOR SOURCE OF VIBRATION, POUNDING, AND RATTLES in steering linkage is likely to be the point at which the auxiliary steering arm meets its bracket. An improvement on the rubber bushing normally provided is the Shemco "7" Aux. Steering Arm Stabilizer Spring, made to absorb road shocks at this point and suitable for Cad, Olds, Pontiac, Nash, Studebaker, Ford, Mercury, Lincoln, Packard. Kits are available at $1.25 each from Shemco Products Co., P.O. Box 202, Williston, N. Dakota.

A NEW AUTOMOTIVE RADIATOR CONDITIONER, already approved by the U.S. Marine Corps, is Agava, a safe colloidal organic compound specially prepared for the treatment of engine cooling systems. As a safeguard against overheating due to inadequate circulation of cooling water, Agava removes clogging scale and rust through absorption and disintegration, after which the Agava and its dissolved impurities can be drained off. This product is packaged in 8 oz. cans which retail for 69 cents. For further information, write Agava Products, Inc., 34 Exchange Place, Jersey City, N.J.

★ ★ ★

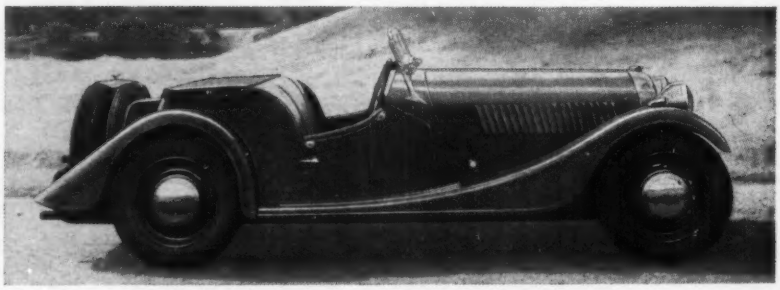
THE FRANK MORGAN COMPANY, LONG A SPECIALIST in the modification of the Studebaker Champion engine, has just placed a dual carburetor intake manifold on the market. The manufacturer states that the new manifold handles wet or dry mixtures of gasoline or alcohol or "hot fuels" because of its inherent design which does not permit wet fuels to channel into one side of the siamese ports. The manifold is cast of close-grained, high-strength



aluminum, is carefully machined and polished to a chrome-bright finish. A good feature of this unit is its sturdy, built-in linkage which is finely adjustable and designed to maintain carburetor synchronization over long periods of time. It's furnished complete with acorn nuts, studs, gasket, and sells for $39.50, plus Fed. Tax, from Frank Morgan Co., Third and Eye Sts., Marysville, Calif.

★ ★ ★

NEWLY APPOINTED WEST COAST DISTRIBUTOR OF THE MORGAN LINE of cars is Angell Motors, of 1145 S. Fair Oaks Ave., Pasadena, Calif. Outstanding products of this line of light English sports cars are the Morgan Plus Four Drophead Coupe, the open Two-seater, and the also open Four-seater. All are powered by the 68 bhp, 127 cu. in. Standard Vanguard engine of proved reliability and economy.



Sporting Scene

(Continued from page thirty-seven)

ing events for strictly stock MGs a feature of each meet. Indicative of the strength of this region is the fact that 55 members were on the starting line for the Second Annual Spring Rally, held March 4. It was run over a 156-mile route with blacked-out speedometers, included six check points. Of the 47 finishers, these were the top three: C. Blackwell (MG-TC), E. Forbes-Robinson (MG-TD), E. Johnson (Bentley). . . . SCCA members John Fitch, Jim Kimberly, Alfred Momo, Jim Pauley, Tony Pompeo, Hal Ullrich all journeyed to Argentina this winter, at the invitation of the Automovil Club Argentino, to participate in sports car racing there.

★ ★ ★

AMERICA'S MG CAR CLUB now has a booming "Mid-Western Center" which will strive to serve the interests of MG owners from the Canadian border to the Gulf. For further info, write the Center: 415 East Erie St., Chicago 11, Illinois.

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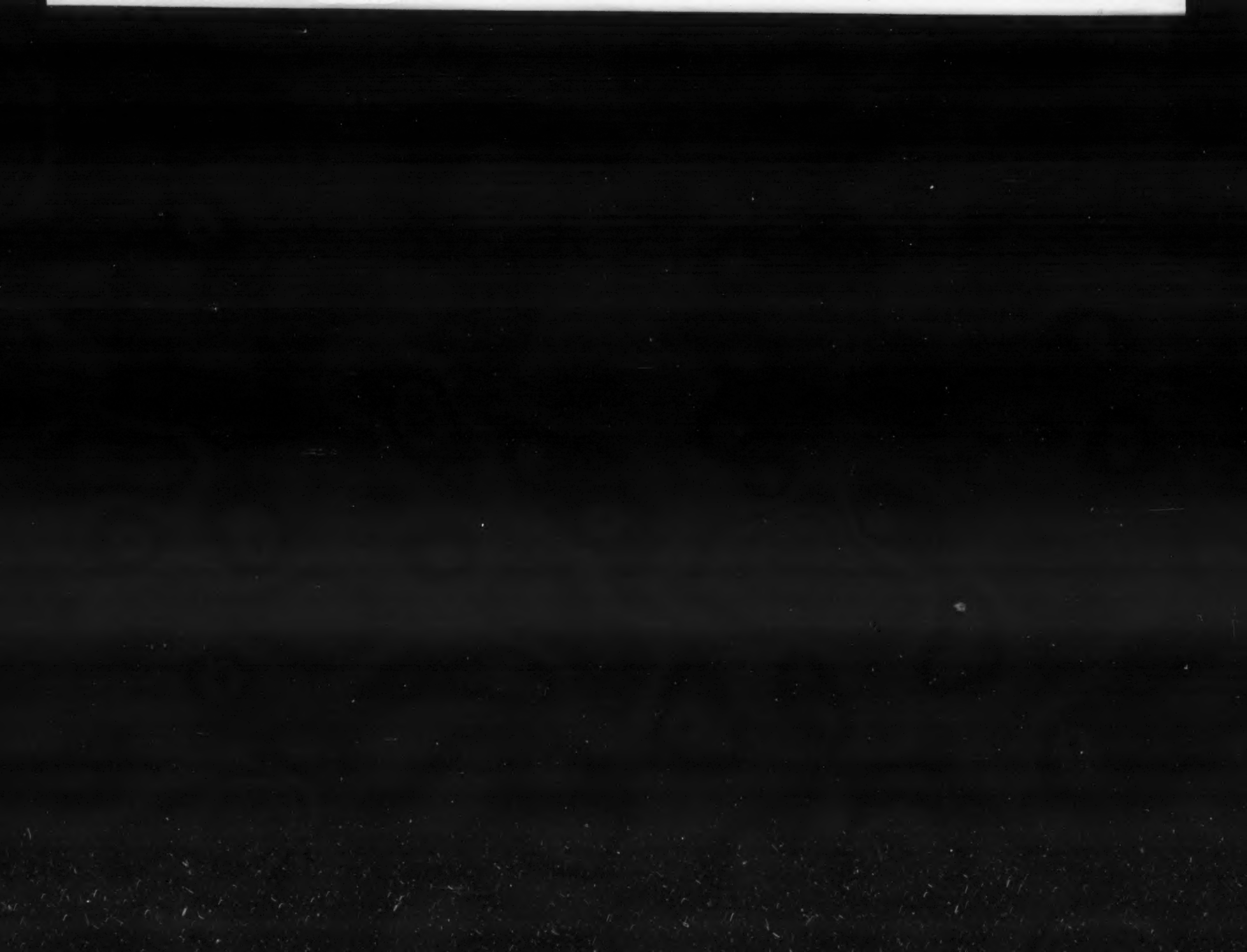

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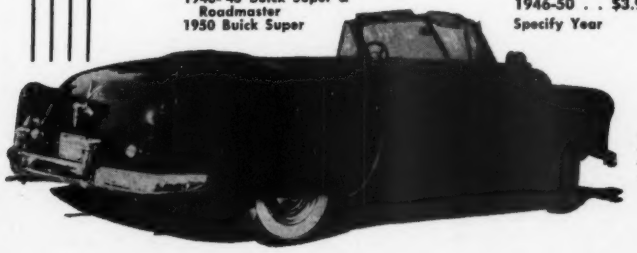

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